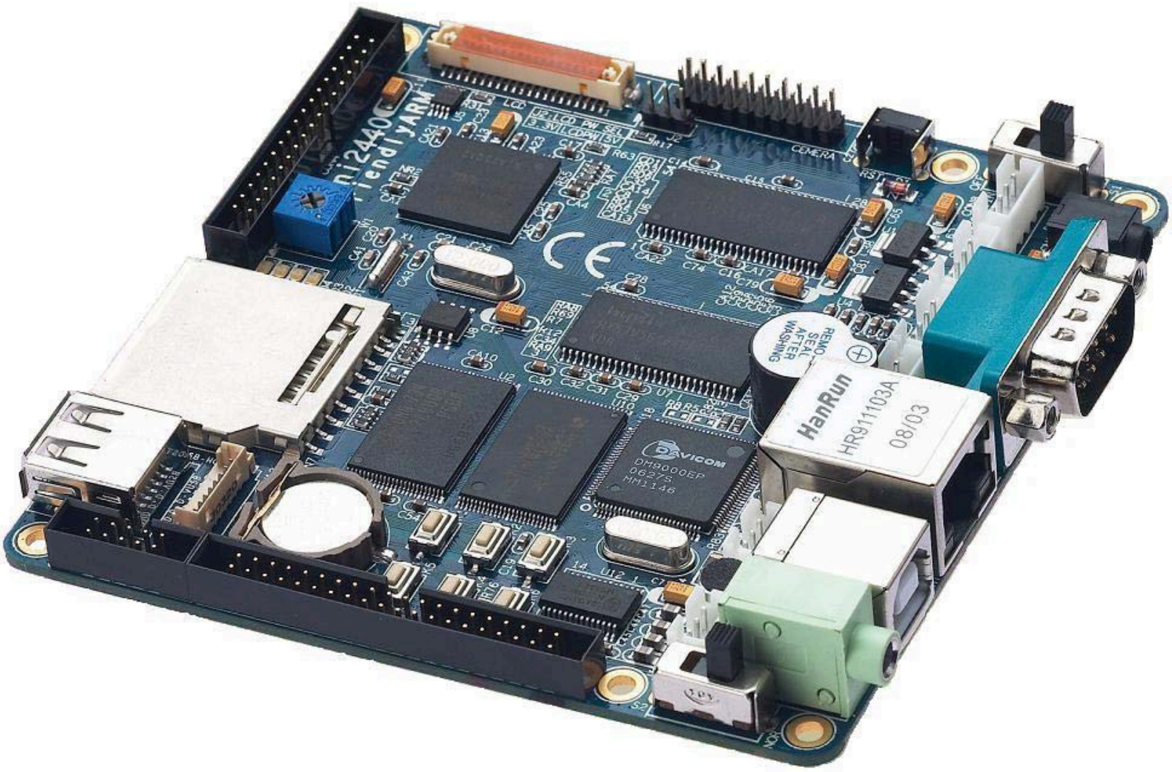
MINI2440 User Manual



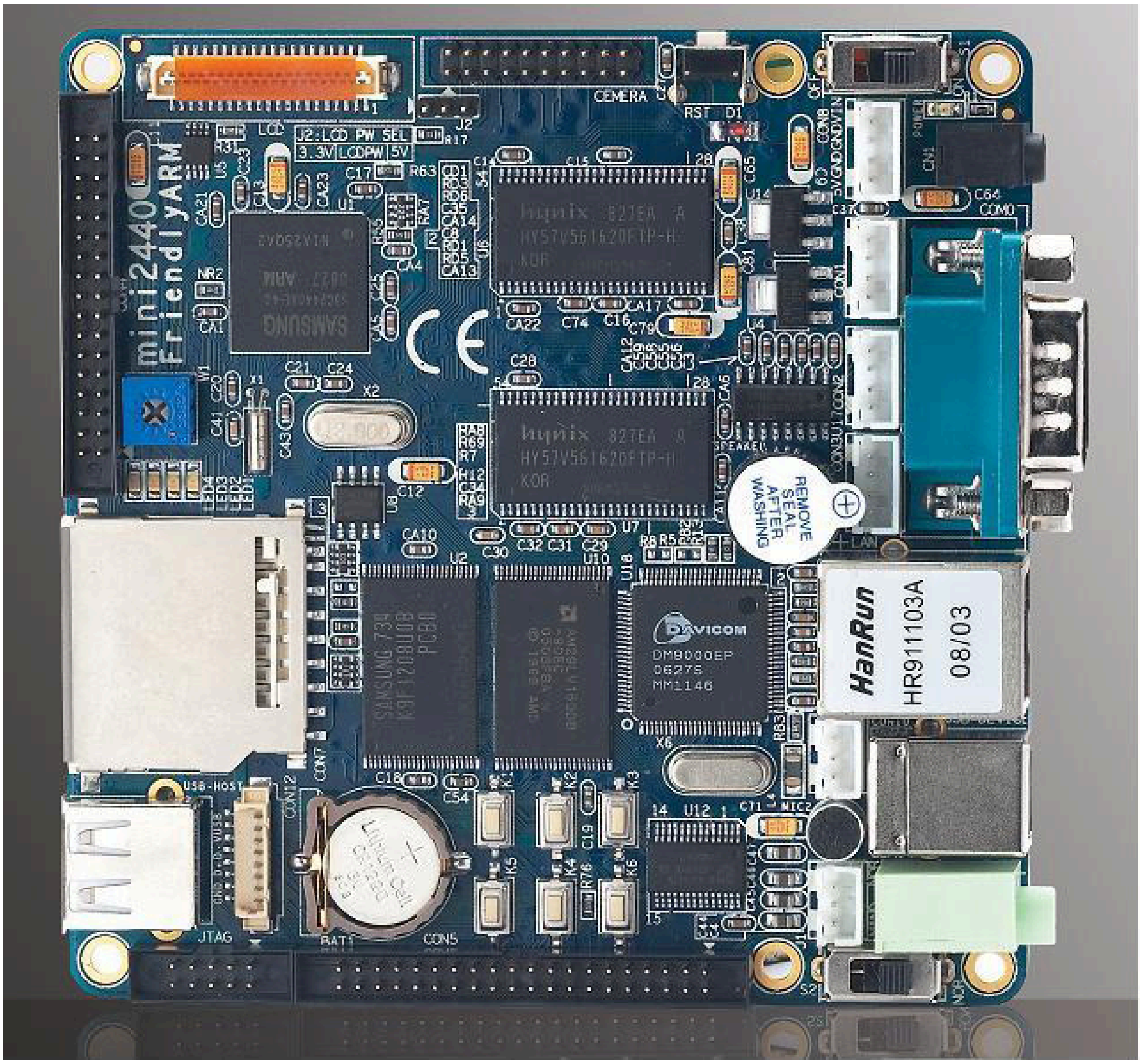
1. Overview

1.1 Description

MINI2440 is a single board computer based on Samsung S3C2440 microprocessor.



1.1.1 Topview of Board



1.1.2 Hardware Features

CPU

- Samsung S3C2440A，400MHz，Max. 533Mhz

SDRAM

- 64M SDRAM
- 32bit DataBus
- SDRAM Clock 100MHz

Flash
- 64M Nand Flash,
- 2M Nor Flash,BIOS installed

LCD
- 4 wire resistive touch screen interface
- Up to 4096 color STN,3.5 inches to12.1 inches, up to 1024x768 pixels
- Up to 64K color TFT,3.5 inches to 12.1 inches, up to1024x768 pixels

Interface and Resource
- 1 10/100M Ethernet RJ-45(DM9000)
- 3 Serial Port
- 1 USB Host
- 1 USB Slave Type B
- 1 SD Card Interface
- 1 Stereo Audio out，1 Micro In；
- 1 20-Pin JTAG
- 4 USER LEDs
- 6 USER buttons
- 1 PWM Beeper
- 1 POT can be used for A/D converter adjust
- 1 AT24C08 for I2C test
- 1 20-Pin Camera Interface
- 1 Battery for RTC
- Power In(5V), with switch and lamp

Oscillator Frequency
- 12MHz

RTC
- Internal

Expand Interface
- 1 34-Pin 2.0mm GPIO
- 1 40-Pin 2.0mm System Bus

Dimension
- 100 x 100(mm)

OS Support
- Linux 2.6.13
- Windows CE.Net 5.0

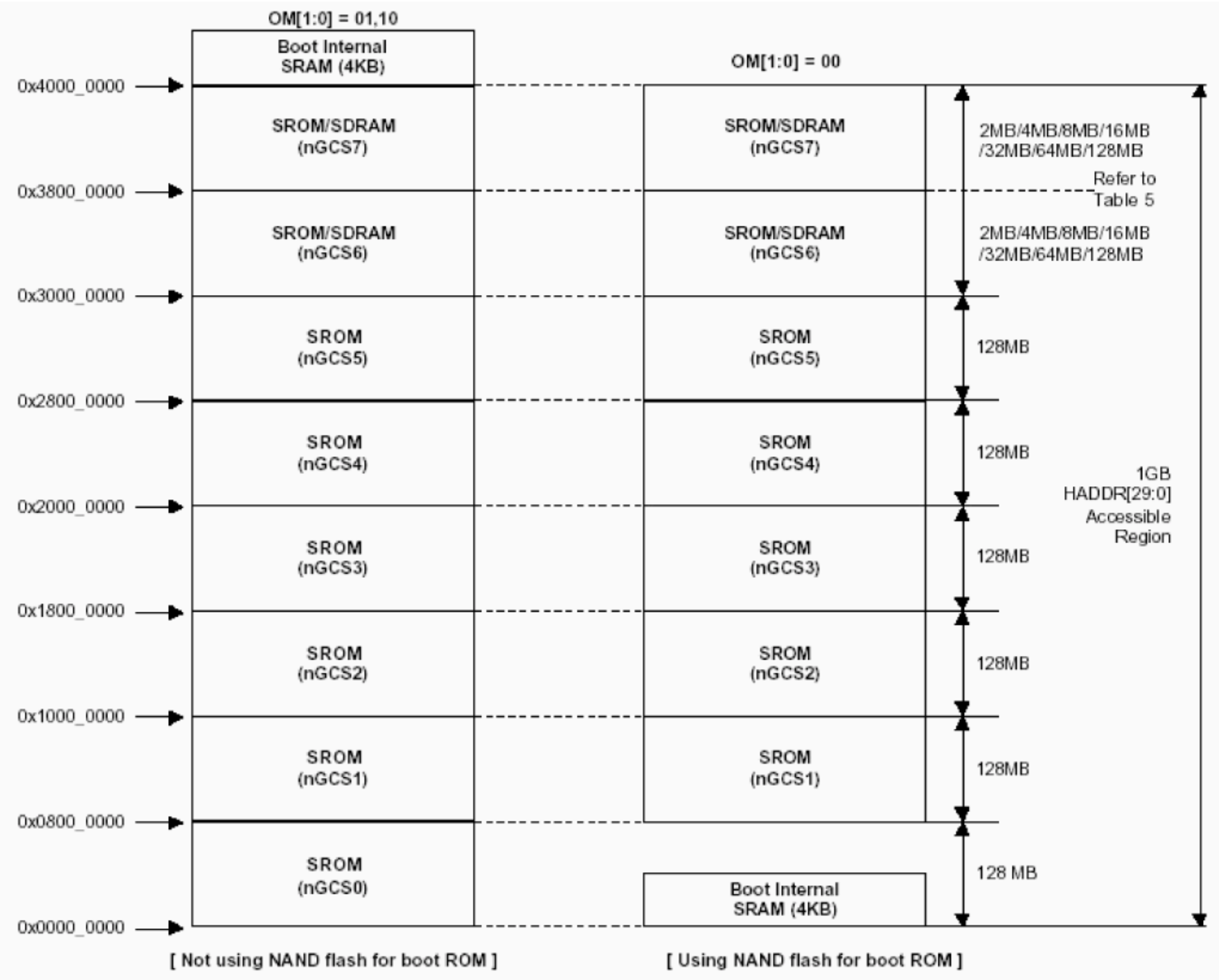
1.1.3 Material list on CD

(1) H-JTAG Debugger
(2) Windows Flash Programmer SJF2440
(3) Linux Nand Flash Programmer Jflash-2440(source code included)
(4) Serial tool CRT, dnw
(5) Bitmap to C Language transfer tool
(6) USB Driver(WindowXP/2000)
(7) vivi source code(linux bootloader)
(8) LED test program(ADS1.20 project)
(9) 2440test program(ADS1.20 project), include :
key test, RTC test, ADC test, IIS Audio play(wav), IIS Audio record,
touch screen test, I2C test, Samsung 3.5"LCD, 640x480 TFT test
(10) WindowsCE BSP and sample project file
(11) Linux tool and kernel source code ：
- arm-linux-gcc-3.3.2 to compile Qtopia
- arm-linux-gcc-3.4.1 to compile kernel
- arm-linux-gcc-2.95.3 to compile vivi
- yaffs file system image maker - mkyaffsimage
- linux-2.6.13 for MINI2440 kernel source code(include DM9000,LCD driver, Audio, Touch screen, YAFFS Source code, SD Card, RTC, Expand serial driver, USB Camera,USB Mouse and Keyboard, U-Disk)
(12) Qtopia source code，web browser source code
(13) Schematic(Protel99SE/PDF)
(14) User Manual(English)

1.2 Hardware Resource

1.2.1 Memory Map and Chip Selection

S3C2440 support 2 boot mode: Nand Flash boot and Nor Falsh boot. Memory map and chip selection is different based on different boot mode:



For Nand Flash Boot, 4k Bytes BootSram mapped to nGCS0 space
For Nor Flash Boot, Nor Flash mapped to nGCS0 space
SDRAM address space: 0x30000000-0x34000000

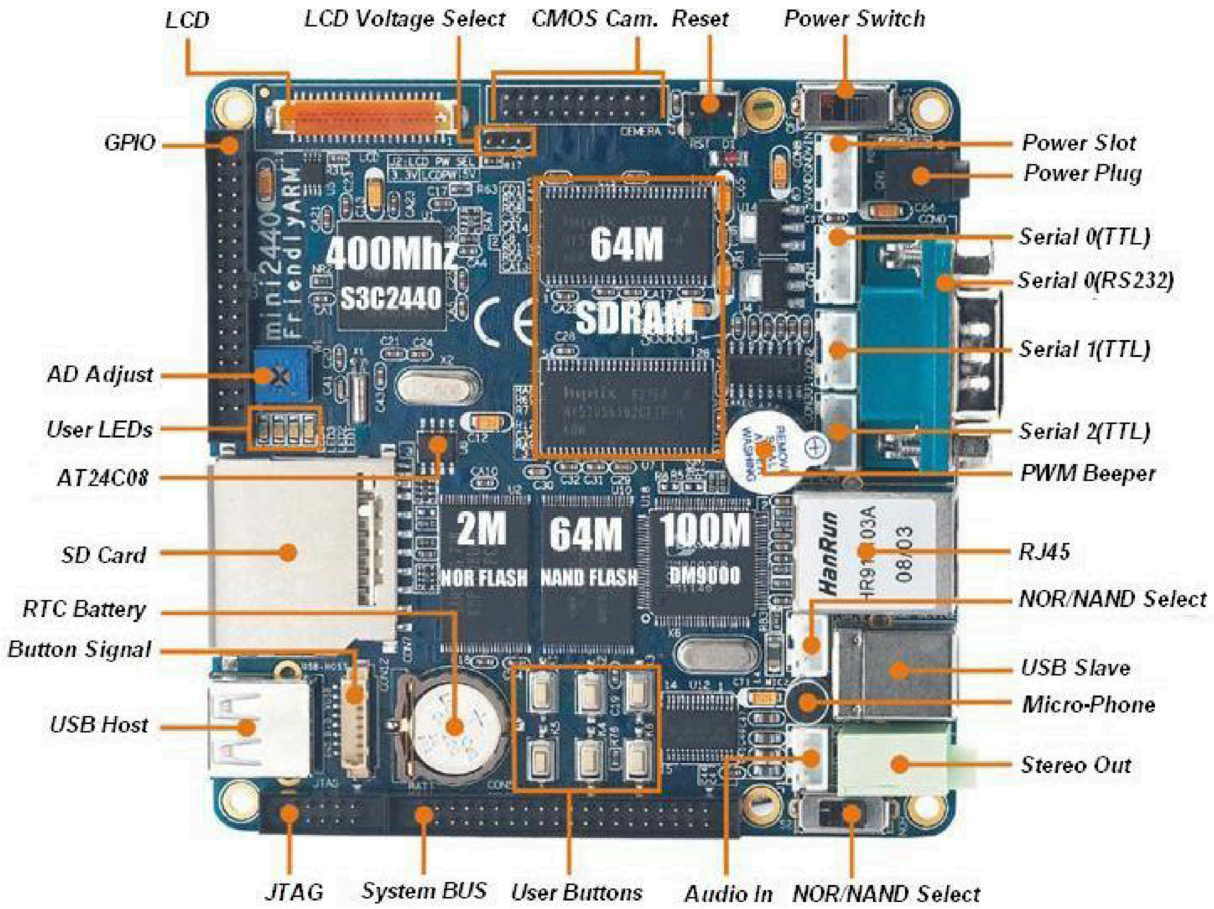
1.2.2 Jumpers

MINI2440 has 1 Jumper, J2:

(1) J2 Power voltage selection for LCD module

NEC LCD 3.5(240x320) ： 5V

1.2.3 Interfaces



1.3 Linux Features

Version

- Linux 2.6.13

File system

- yaffs
- cramfs
- Ext2
- Fat32
- NFS

Basic driver(with source code)

- 3 serial driver
- DM9000 driver
- Audio driver
- RTC driver
- LED driver
- USB Host driver
- LCD driver

- Touch screen driver
- USB camera
- USB mouse, keyboard, U-disk, mobile-disk
- SD Card driver

Linux Application

- busybox1.2.0
- Telnet、Ftp、inetd
- boa(web server)
- madplay
- snapshot
- ishow
- ifconfig、ping、route

Embedded GUI(with source code)

- Qt/Embedded

1.4 Windows CE Features

Version

- WindowsCE.net 5.0

Features

- DM9000 driver(source code)
- USB keyboard、USB mouse、USB disk、mobile hard disk
- 3 serial port COM driver
- USB ActiveSync
- Audio driver
- SD driver
- Real time clock
- Registry saving
- Flash save when power lost
- Screen rotating

Default features(Simplify Chinese)

- XP style interface
- Windows Media Player 9.0(mp3, mpeg2, mpeg4, wmv, wav)
- Super Player
- Photo viewer, Note Pad
- IE6
- ftp,telnet,httpd server
- COM debugger

2. How to use MINI2440

Linux images were loaded before shipment (supervivi、zImage_n35、root_default.img)，Note the procedures below will be run under Windows。

2.1 Hardware Setup

2.1.1 Boot Mode

Boot mode can be selected by S2, according words on silk screen：
S2 connect to Nor Flash side，system will boot from Nor Flash；
S2 connect to Nand Flash side，system will boot from Nand Flash。

BIOS which pre-loaded in Nor Flash and Nand Flash are the same in shipment. By default, S2 had been connected to Nand Flash.

2.1.2 External connection

1. Connect serial port 0 to PC COM port by a dummy modem cable
2. Connect Ethernet port to PC by a cross cable
3. Connect DC 5V power adapter to power supply in
4. Connect your phone set to stereo out(Green)
5. Connect your LCD module to LCD connector
6. Connect with PC by a USB cable

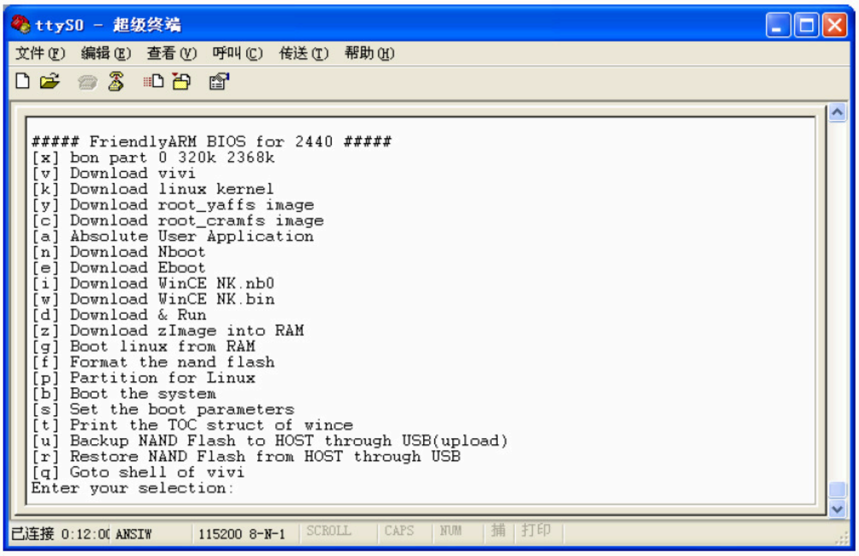
2.1.3 Hypterminal Setup



2.2 BIOS Function

2.2.1 Enter BIOS

Supervivi had been pre-loaded in Nor Flash before shipment. Set S2 to Nor Flash can enter BIOS main menu after power on:



About supervivi:

Supervivi is a bootloader based on Samsung open source vivi. It can be used as a tool to download and burn OS image to the flash on board. It can also be used to for parameters configuration. Supervivi download OS image file from PC by USB port.

Supervivi can be installed in either Nor Flash or Nand Flash. When Supervivi is booting from Nand Flash, user can hold down space bar in Hypterminal when board booting, to force supervivi enter main menu. Or supervivi will directly boot OS image by default.

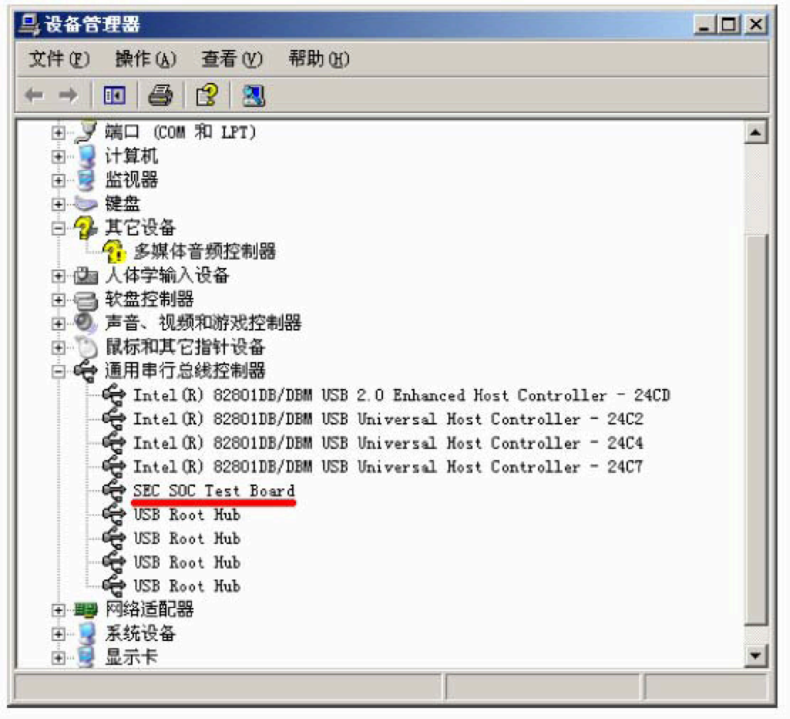
Supervivi also has a Download&Run feature which can run user image directly. There is a sample code 2440test on CD-ROM for this kind application.

2.2.2 Install USB Driver

DNW USB driver for windows is located on CD-ROM \windows tool\usb. Install this driver when board connected to PC first time. Open DNW, “usb:ok” will indicated on DNW title bar if USB connection successfully:

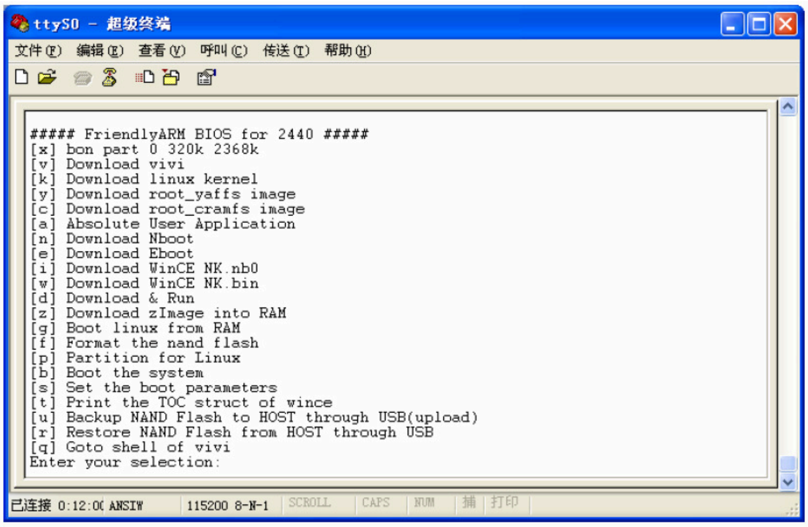


USB device list on PC after driver installation



2.2.3 Main Menu Function

Note: DNW is needed for all function related with image downloading through USB connection.



[x]: make default partition on Nand Flash

[v]: download vivi image to vivi partition on Nand Flash

[k]: download linux image to kernel partition on Nand Flash

[y]: download yaffs file system image to root partition on Nand Flash

[c]: download cramfs file system image to root partition on Nand Flash

[a]: download user binary image to Nand Flash, like 2440test, uCos2, U-Boot

[n]: download Nboot image to block0 on Nand Flash

[e]: download Eboot to Eboot partition on Nand Flash

[i]: download NK.nb0 to Nand Flash

[w]: download NK.bin to Nand Flash

[d]: download exec image to specific memory address(Address is defined by DNW|Configuration|Option) and run it. The SDRAM address is 0x30000000 – 0x34000000. The memory size is 64Mbytes. The user available address space is 0x30000000 – 0x33DE8000.

[z]: download zImage to 0x30008000

[g]: run zImage image in memory, work together with command [z]

[f]: erase Nand Flash. The available address space for Nand Flash is 0x0 – 0x4000000

	Start Address	End Address
Vivi partition(block0-13)	0x0	0x50000
Linux kernel partition(block14-93)	0x50000	0x250000
File system partition(block94-4095)	0x250000	0x4000000
Whole Chip	0x0	0x4000000

[p]: make partition on Nand Flash for linux. Refer to sub menu function for details

[b]: boot OS

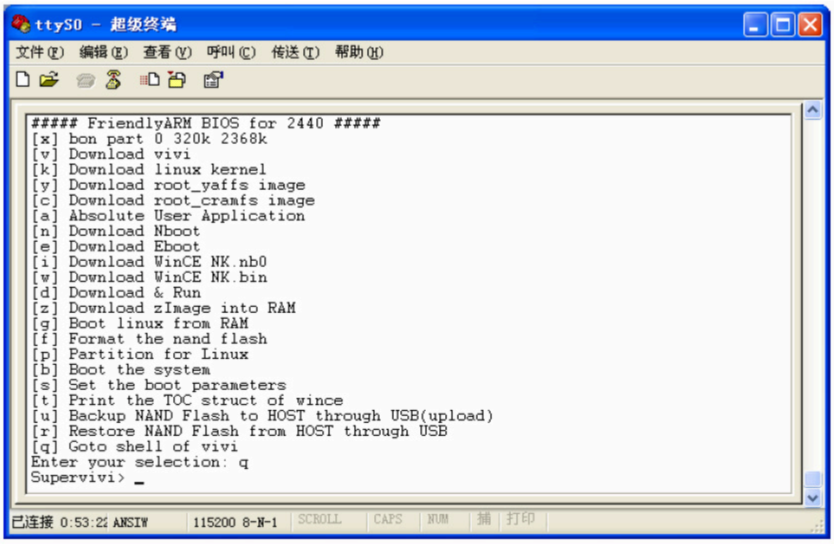
[s]: set linux start up parameters

[t]: display TOC of wince image

[u]: backup the whole content in nand flash and upload it to pc by dnw tool

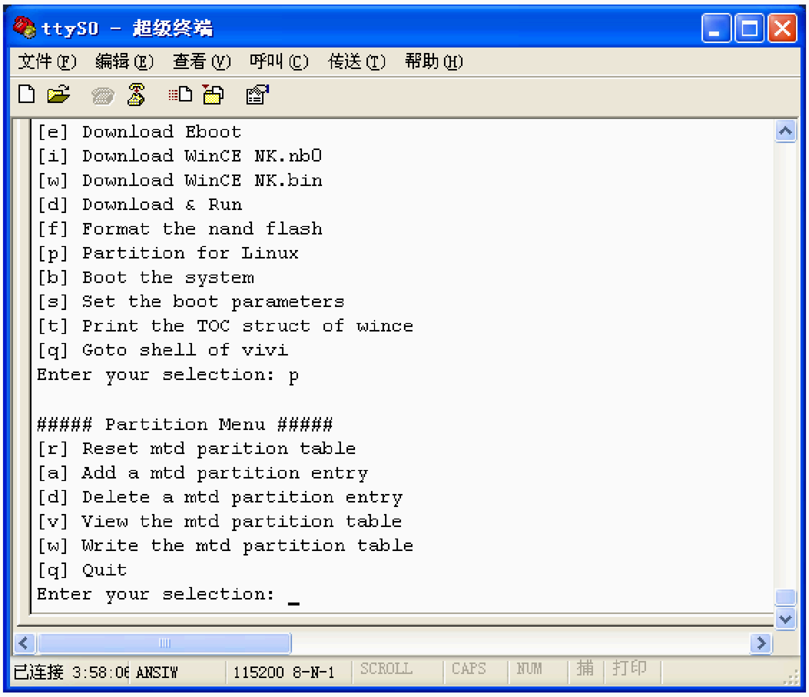
[r]: restore backup file to nand flash by dnw

[q]: go to regular command line interface for vivi



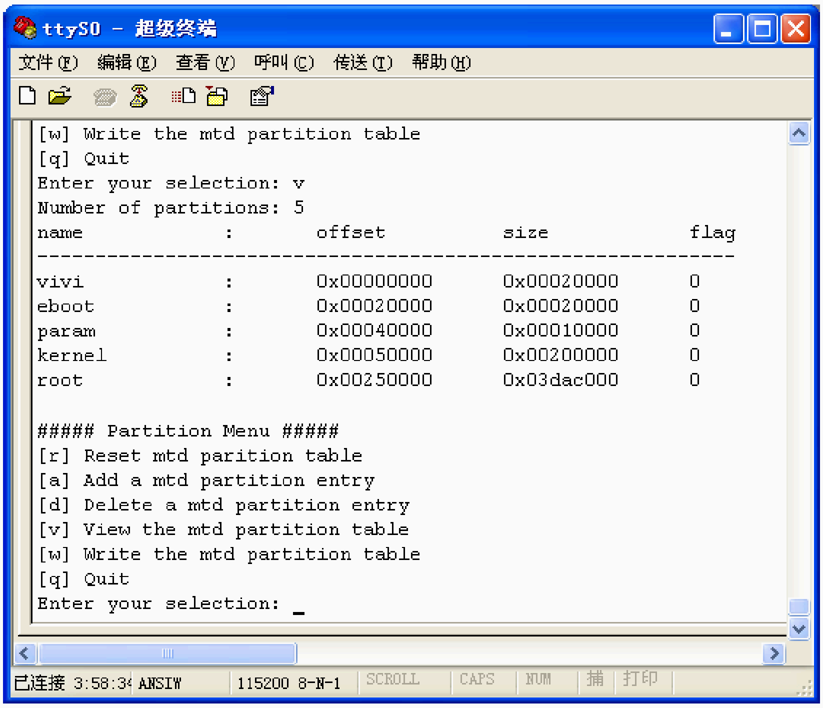
Type “menu” to return to main menu for supervivi

2.2.4 Partition Sub Menu Function

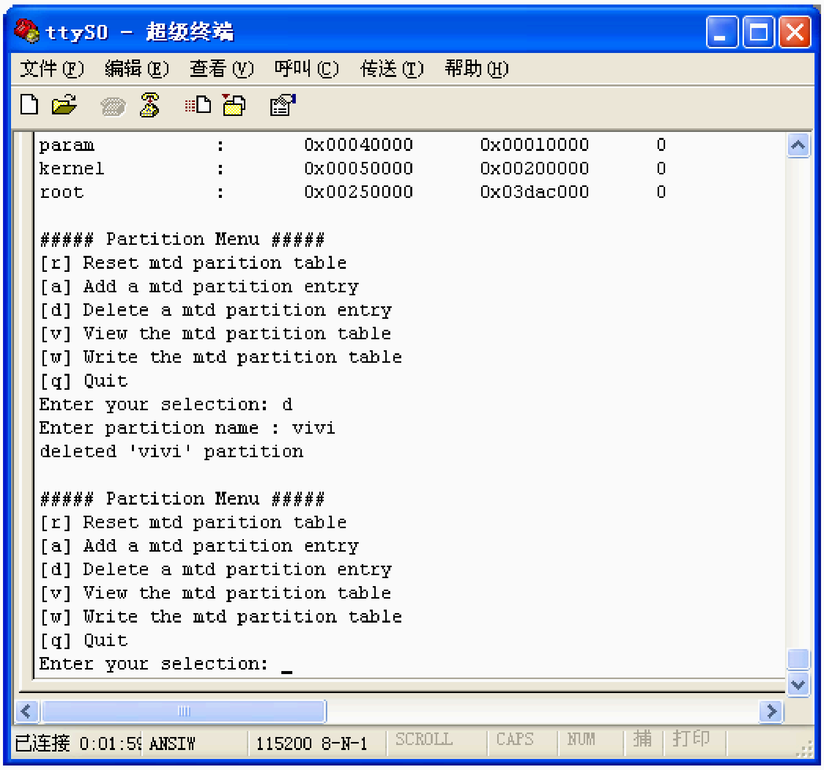


(1) View current partition

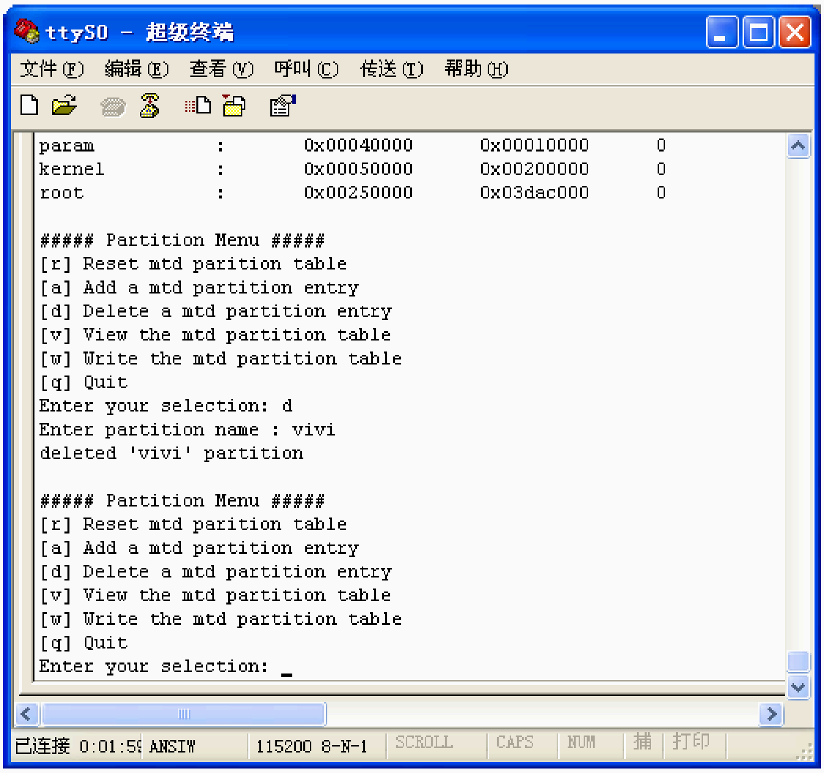
Type “v” to view current partition information. If Nand Flash is empty or new, default partition table will be displayed.



(2) Delete partition

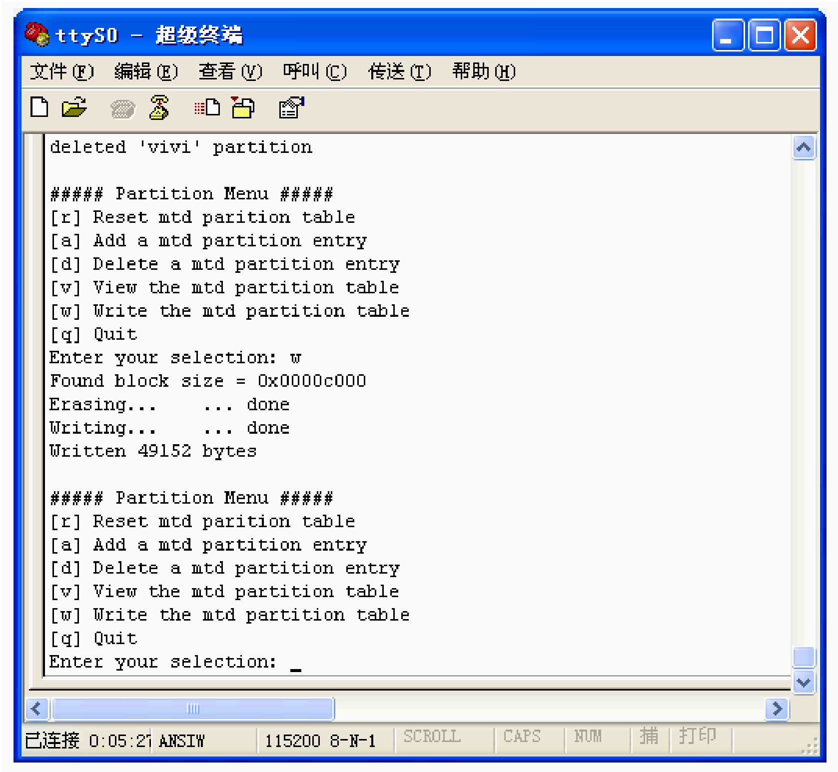


Input “d” to delete specific partition. Input “vivi” if you want to delete “vivi” partition:



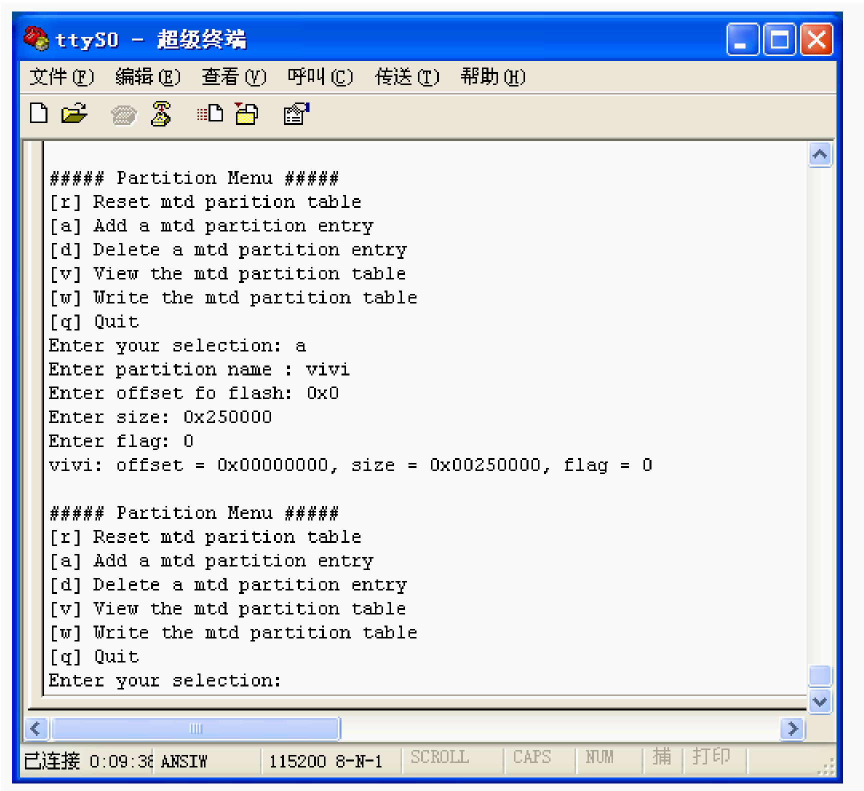
(3) Write Partition

Input “w” to write partition table. Partition modification can only take effect by write command.



(4) Append Partition

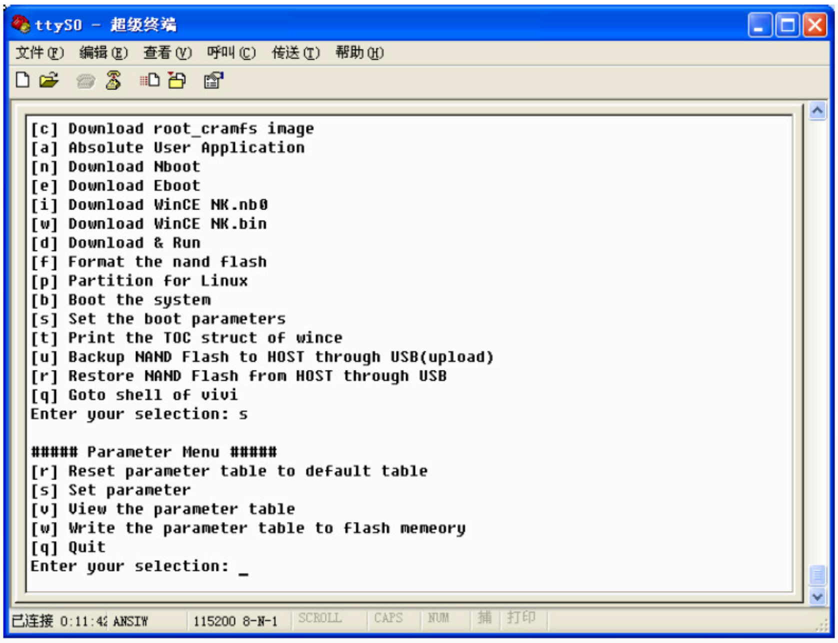
Input “a” to append a new partition. Supervivi will prompt you with some informations for the new partition like : name, offset, size and flag.



(5) Reset partition table

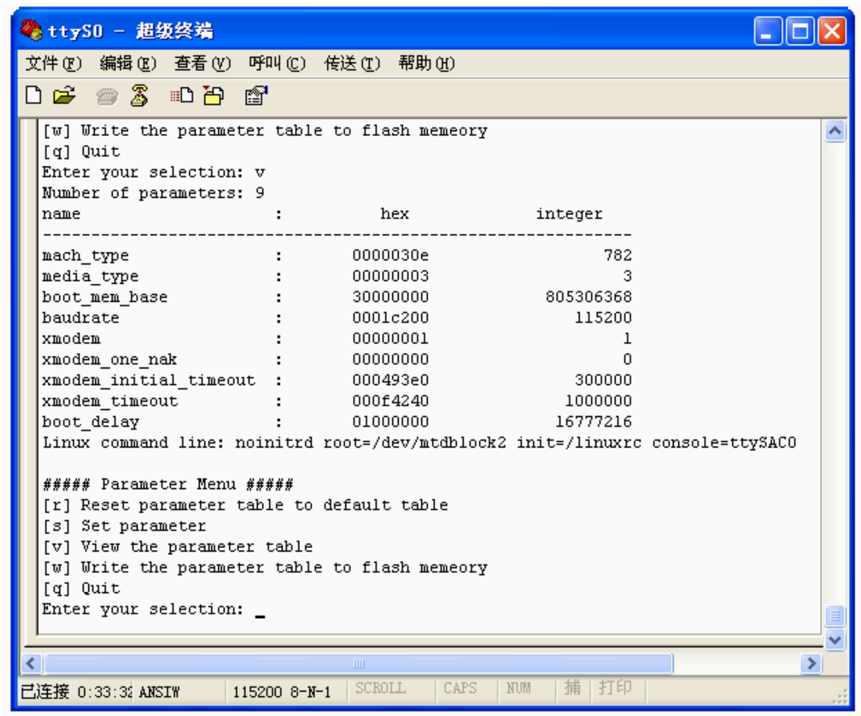
Input “r” to reset partition table with supervivi default parameter. Remember use “w” command to make your reset operation take effect.

2.2.5 Linux Parameter Setup



(1) View Parameter

Input “v” to view current parameters

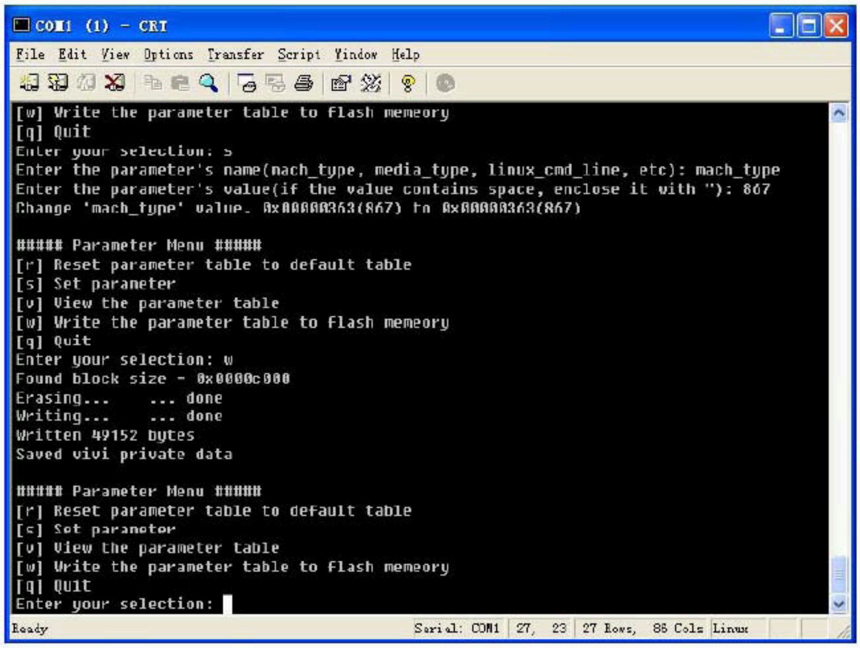


(2) Set Parameter

Input “s” to set parameter.

How to set mach_type

The default mach_type is 782. You can change this parameter if you complier your kernel with MACH_TYPE 867.



How to set linux command line

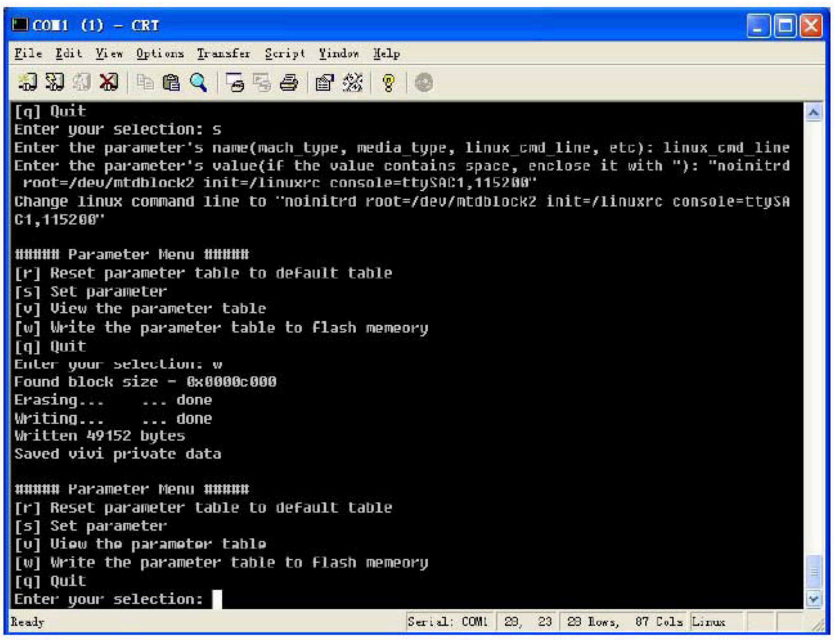
Linux_cmd_line is a very often used parameter for kernel startup. Here is an example for how to change default tty terminal from serial 0 to serial 1:

View current parameters:

Linux_cmd_line: noinitrd root=/dev/mtdblock2 init=/linuxrc console=ttySAC0

Input “s”, and then input “linux_cmd_line”, input “return”, and then input:

“noinitrd root=/dev/mtdblock2 init=/linuxrc console=ttySAC1,115200”



After parameter successfully saved, linux will startup and logon from serial 1

(3) Save Parameter

Input "w" to save parameters

(4) Recover Parameter

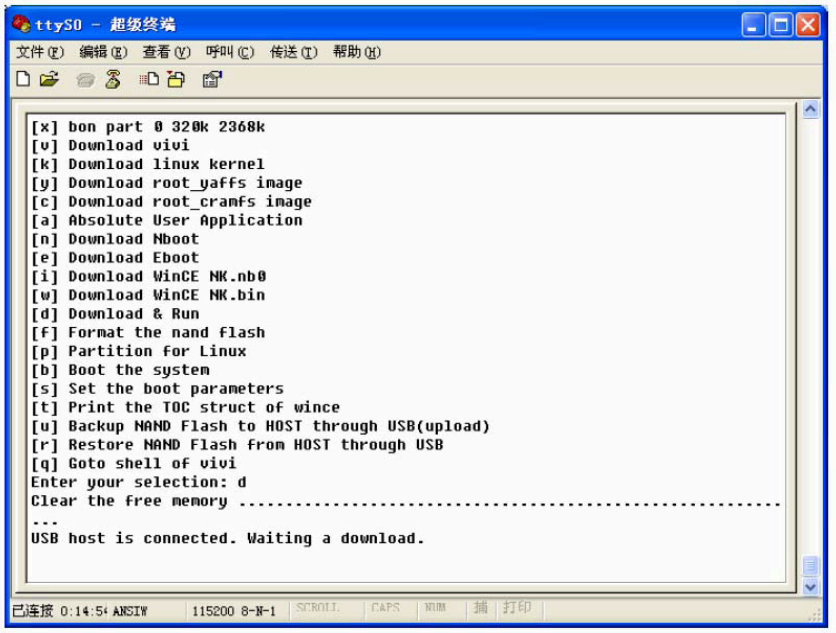
Input "r" to recover default kernel startup parameters

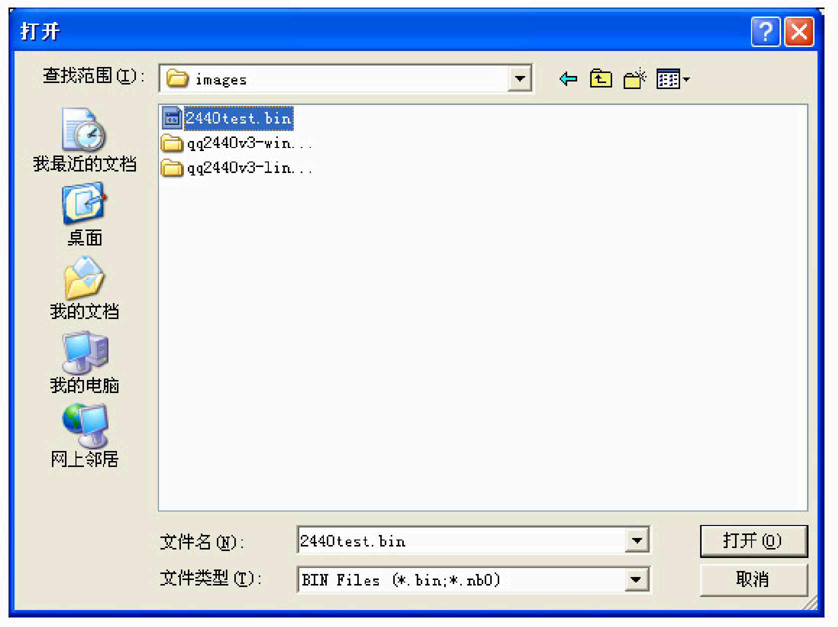
2.3 Test Program without OS

Test program 2440test can be used to test PWM beeper, RTC clock, AD converter, button, touch screen, LCD, infra, I2C bus, audio in, audio out, SD Card and CMOS Camera.

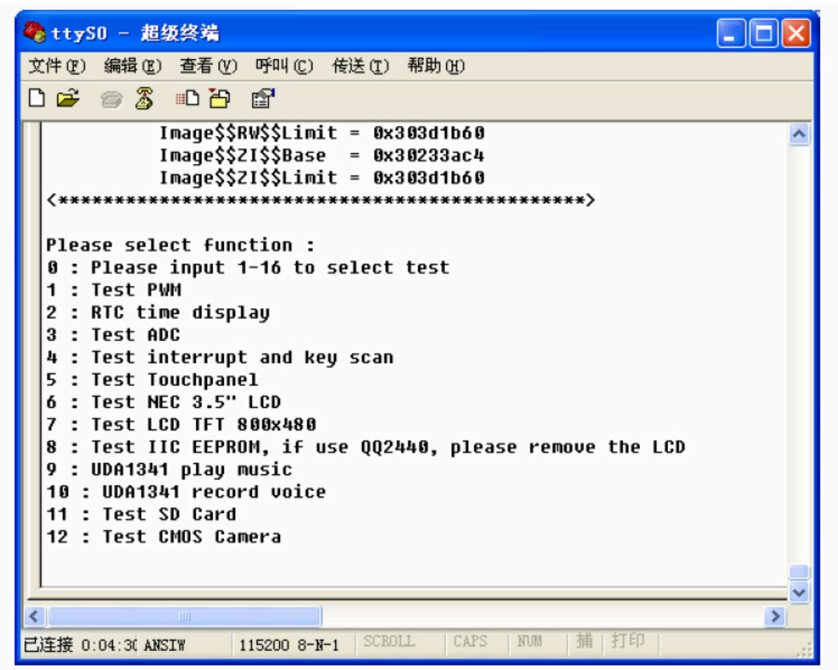
2.3.1 Download 2440test

Install USB driver on Windows and setup Windows Hypterminal for serial cable connection. Connect USB cable and launch DNW for 2440test binary image downloading. The USB download address in DNW should be 0x30000000.



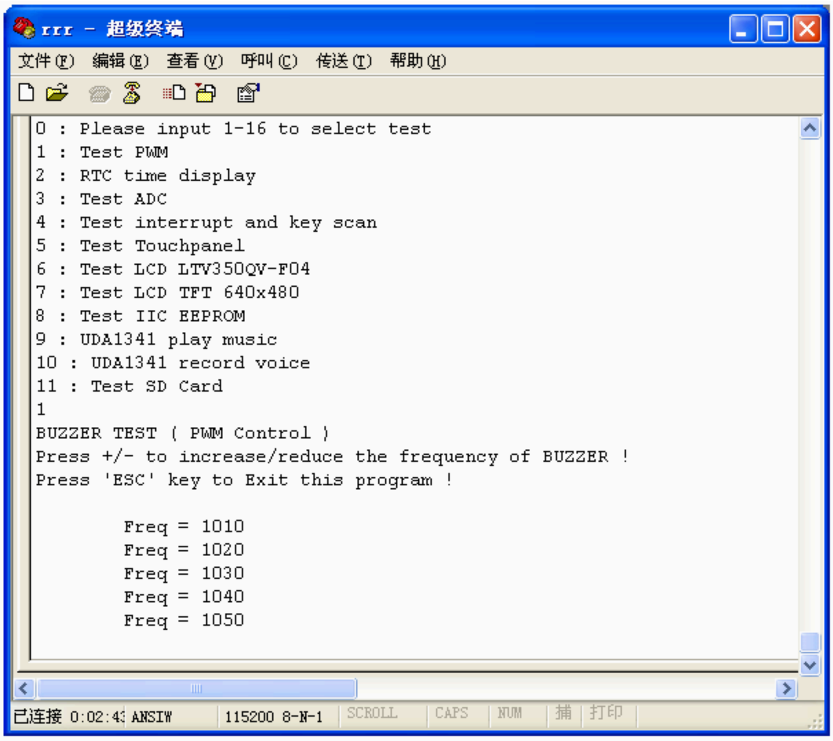


2440test program will automatically run after successfully download:

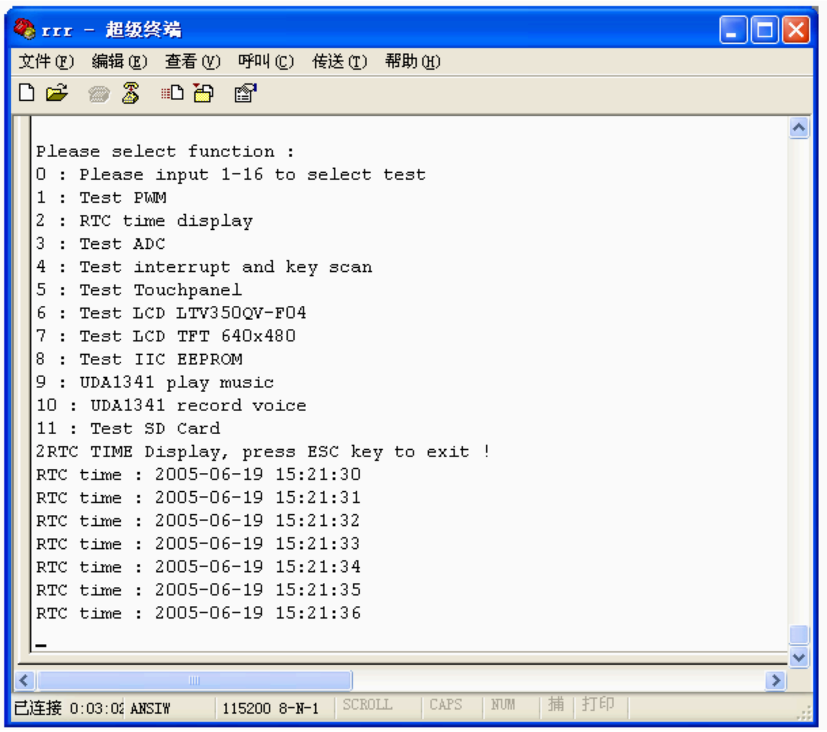


2.3.2 Hardware Test

(1) Beeper Test

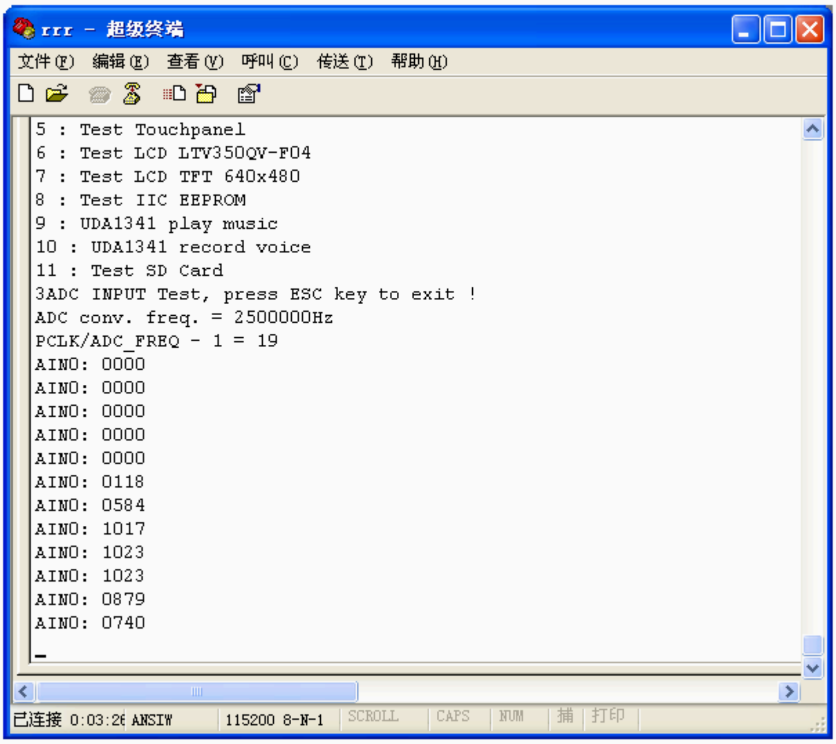


(2) RTC clock test

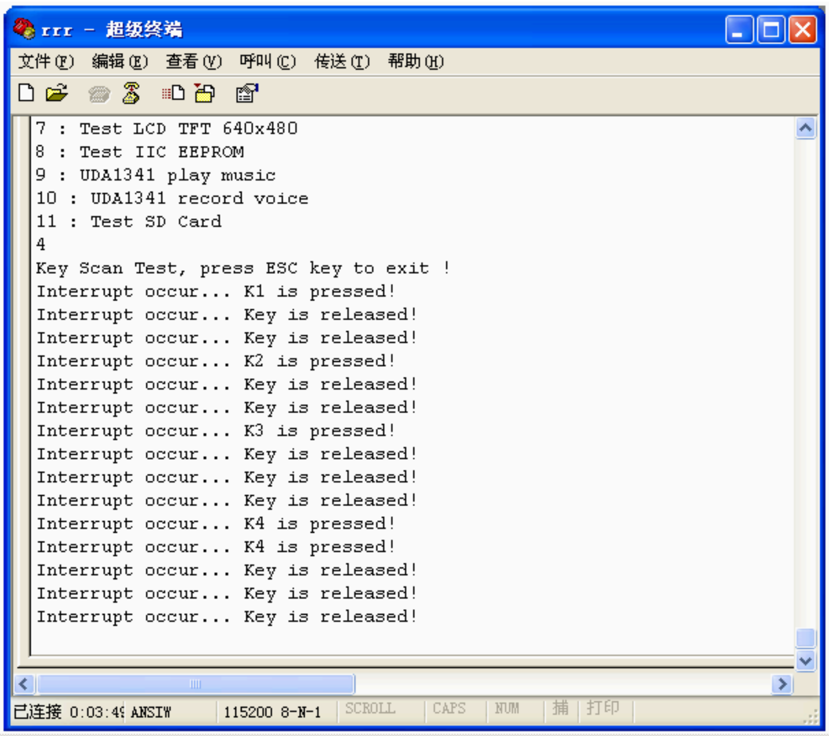


(3) AD converter test

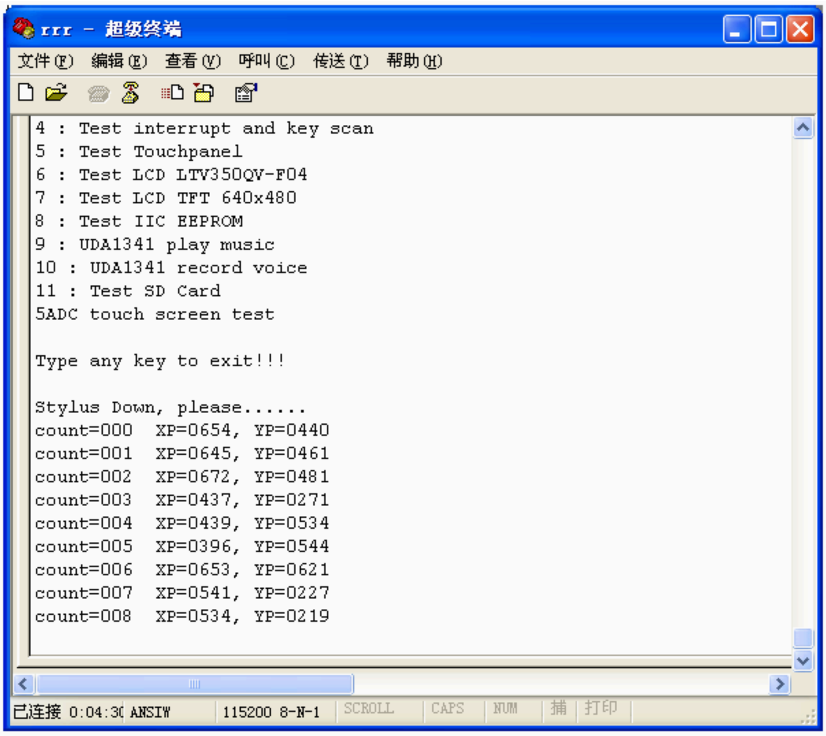
User can skew W1 on board for this AD converter test.



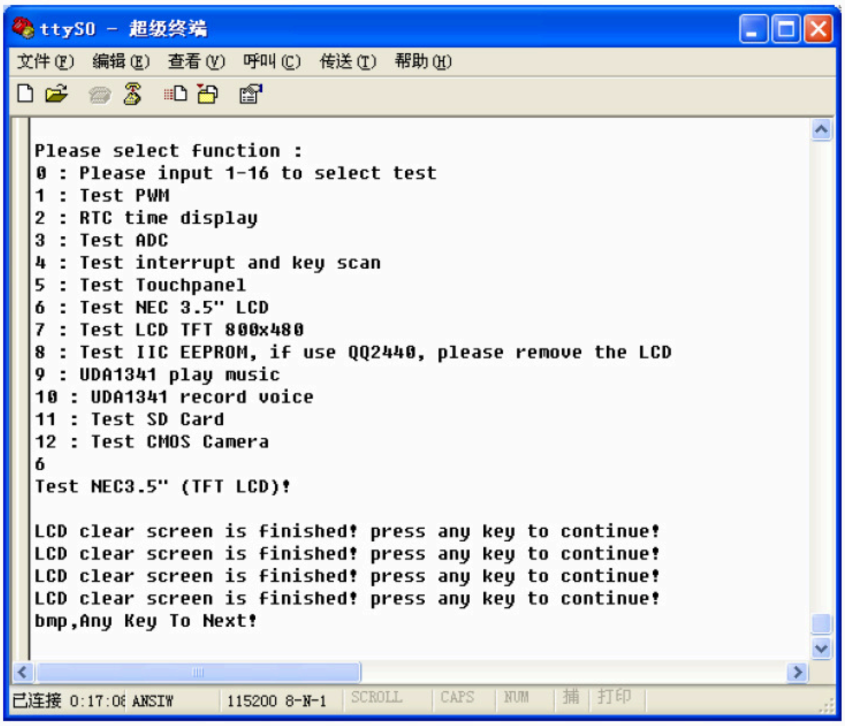
(4) Button Test



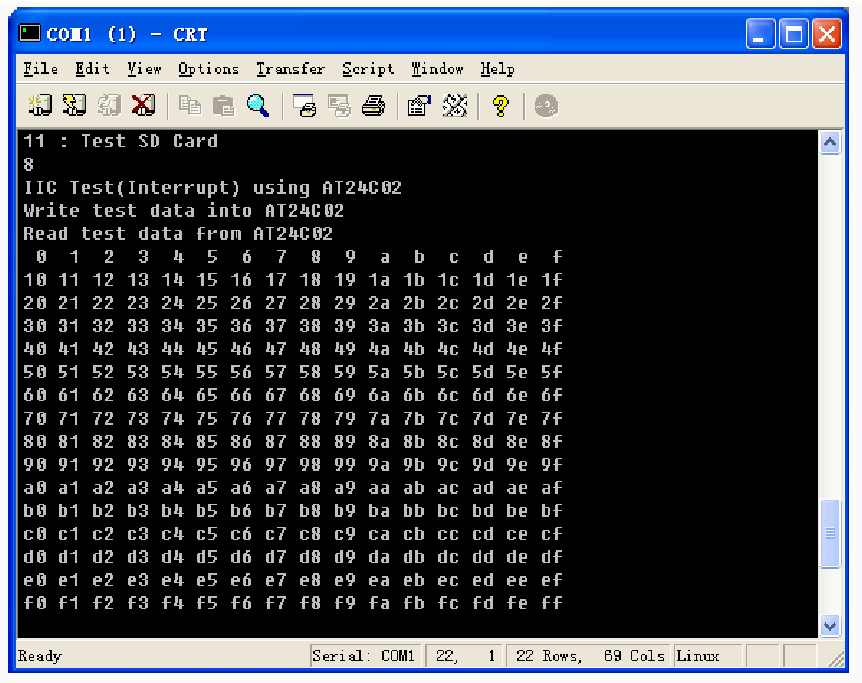
(5) Touch Screen Test



(6) LCD Test

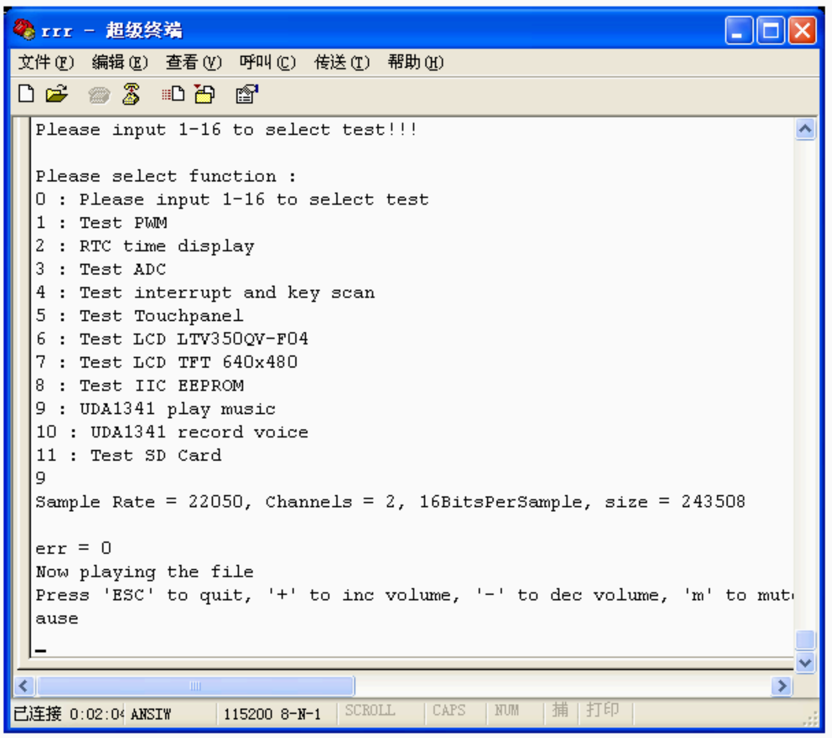


(8) I2C Test

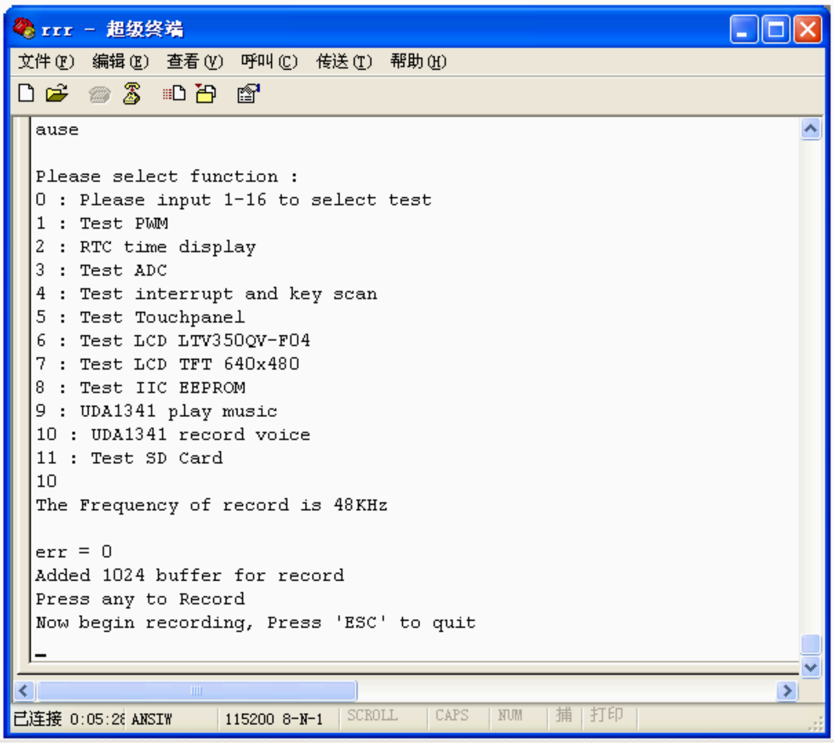


(9) Stereo Out Test

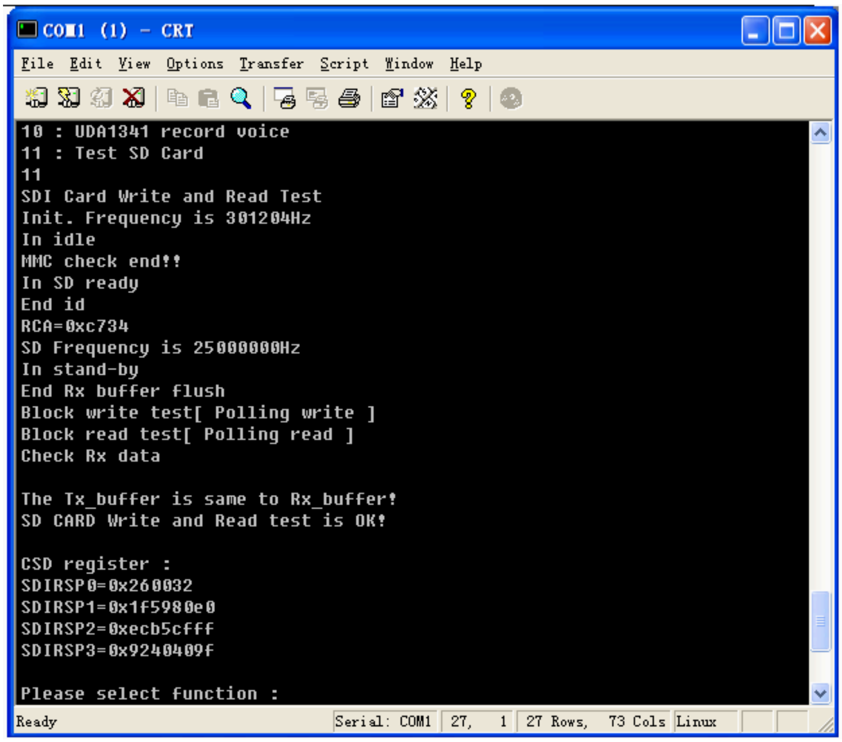
Connect your external phone set or speaker to MINI2440 stereo out socket(Green)



(10) Audio In Test

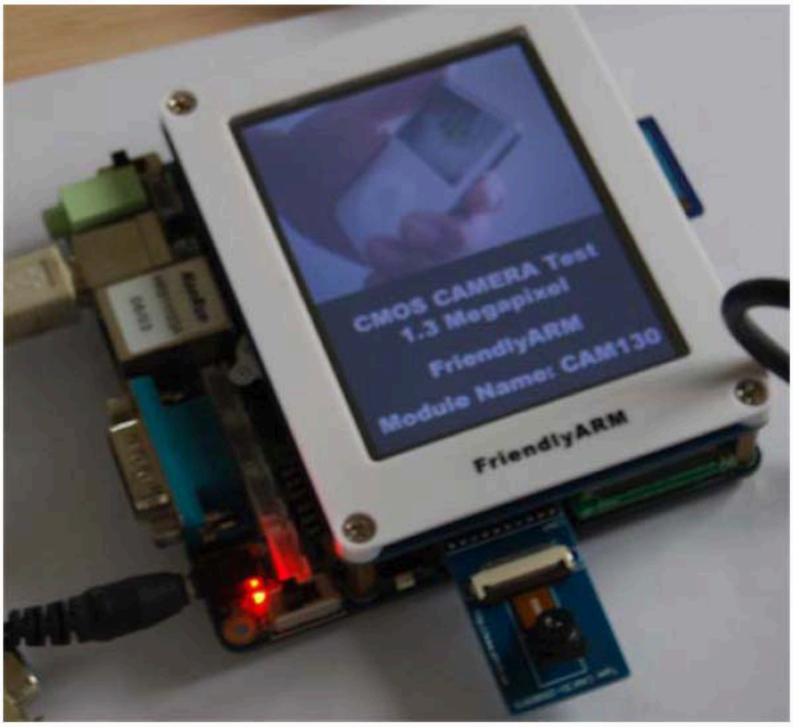


(11) SD Card Test



(12) CMOS Camera Test

This function can only be tested when LCD screen connected.



2.4 Linux Function

Linux was pre-loaded as default OS before shipment. This default linux image is root_default.img on CD-ROM. With support by linux, user can test the functionalities of almost all of hardware resources on the board.

2.4.1 MP3 Play

Madplay is MP3 player under console. It has several play modes and the simplest way to use is:

```
#madplay your.mp3
```

Please run “madplay –h” for help of this program.

2.4.2 Stop a Program

Press “Ctrl+c” to stop running of a program. Use “kill” to stop a program running on back ground.

2.4.3 Use U-Disk and Mobile Harddisk

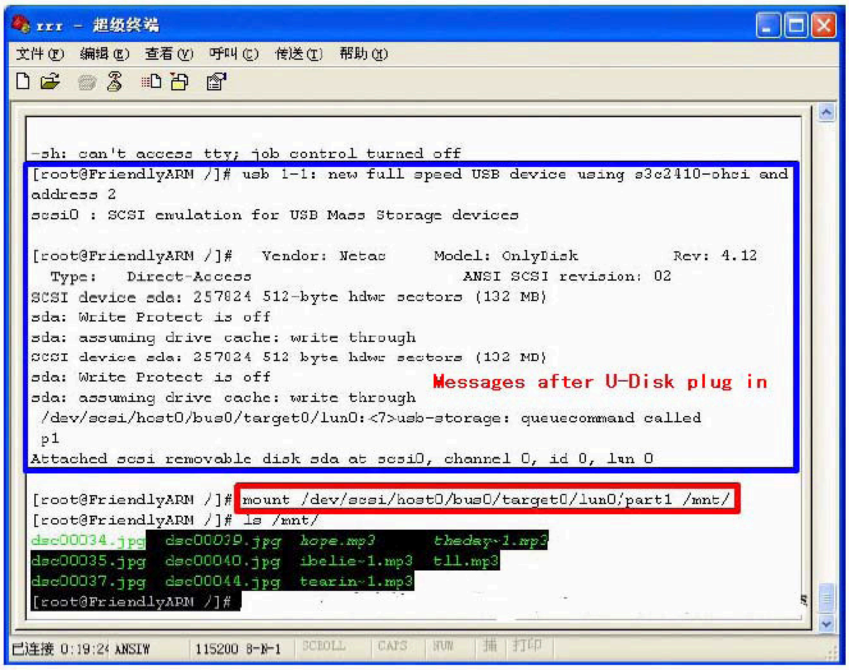
Mobile storage device file is /dev/scsi/host1/bus0/target0/lun0/part*. We create a link here in order to make compatible with standard linux U-Disk device name:

#ln –s /dev/scsi/host1/bus0/target0/lun0/part1/dev/sda1

Note: This command had been already in /etc/init.d/reS script. So user can use /dev/sda1 directly after system power up. Use the mount command as soon as a U-Disk plug in USB Host interface:

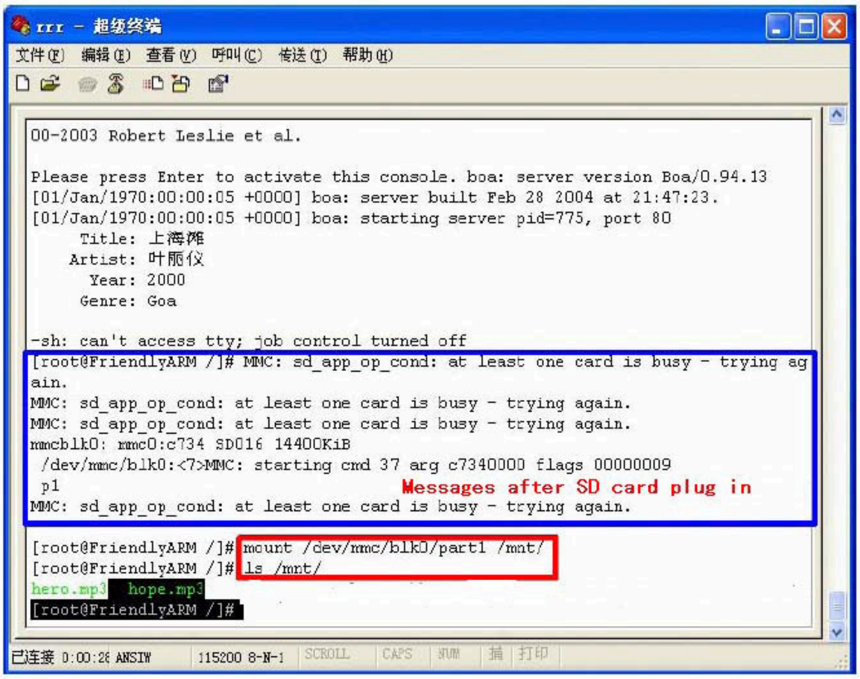
#mount /dev/sda1 /mnt

User can also mount U-Disk device directly after plugging in:



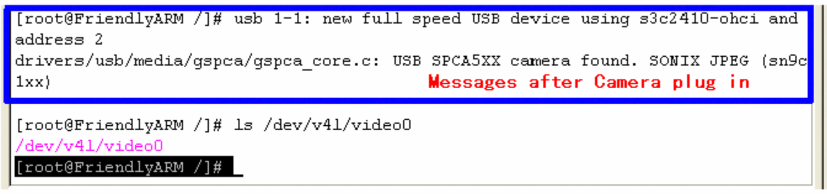
2.4.4 Use SD Card

Mounting of SD Card device is similar with U-Disk.



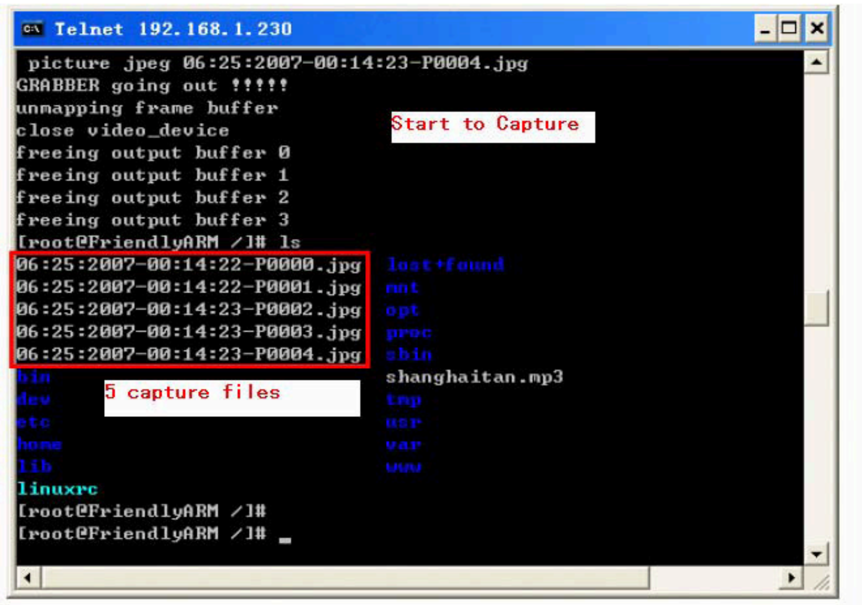
2.4.5 Use USB Camera

MINI2440 can support USB camera with vimicro chipset. As soon as USB camera plug in, the following device will automatically be installed:



Use spcacat to capture the picture:

#spcacat –p 100ms –N 5



For a better quality of picture:

#spcacat –s 384x288 –p 100ms –N2 -o

2.4.6 Transfer file with PC

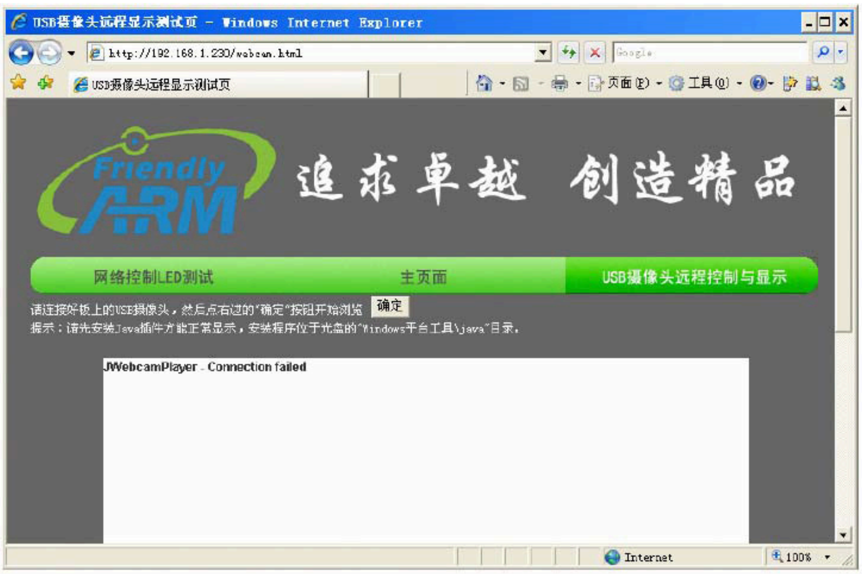
User can transfer(sz/rz) files with PC when he/she login linux by serial console.

2.4.7 Remotely display USB Camera

MINI2440 has an embedded web server:

http://192.168.1.230

There is a remote USB camera control and play function embedded in the main page.





2.4.8 LED Control

(1) LED Server

There is a automatically startup script(/etc/rc.d/init.d/leds) after system power on. This script call a server program named as led-player. Led-player will create pipe file at /tmp, so user can change flash ratio of the leds by sending different parameters to the piple.

#echo 0 0.2 > /tmp/led-control

4 leds will flash as a flow with 0.2 seconds interval

#echo 1 0.2 > /tmp/led-control

4 leds will flash as a accumulating with 0.2 seconds interval

#/etc/rc.d/init.d/leds stop

4 leds will stop flashing

#/etc/rc.d/init.d/leds start
4 leds will start to flash

(2) Separately control of LED

/bin/leds is a separately controller of leds. User need to stop led-player before leds
#/etc/rc.d/init.d/leds stop

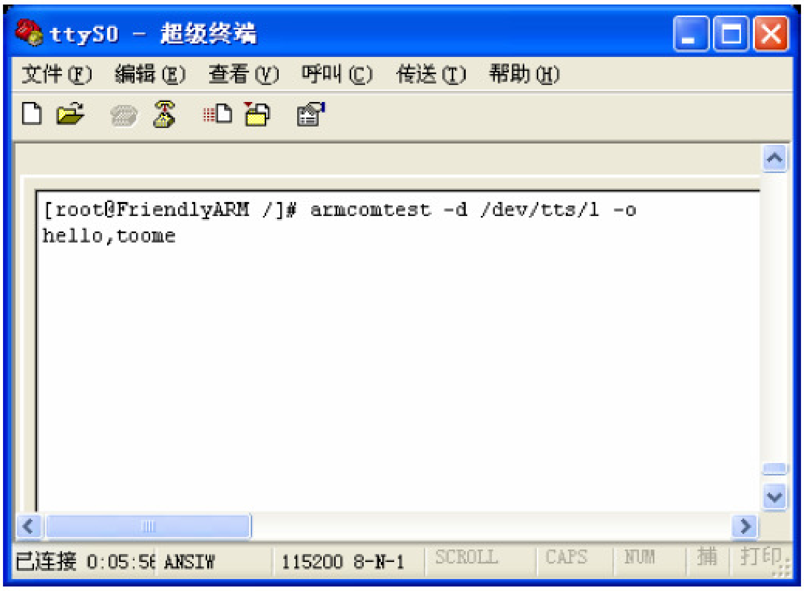
[root@fa /]#led
Usage: leds led_no 0|1
Led_no is number of leds(0-3), 0 represent off, 1 represent on

2.4.9 Button Test

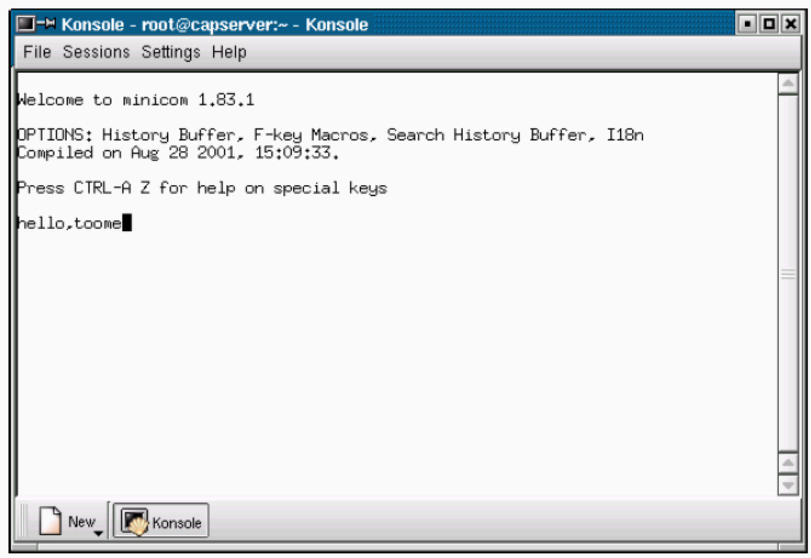
Run “buttons” to test buttons on board

2.4.10 Serial 2 and 3 Test

User need an expand board for serial port 2 and serial port 3 test. Set Hypterminal on PC to 115200 Baudrate and no hardware flow control.
#armcomtest –d /dev/tts/1 –o
#armcomtest –d dev/tts/2 –o

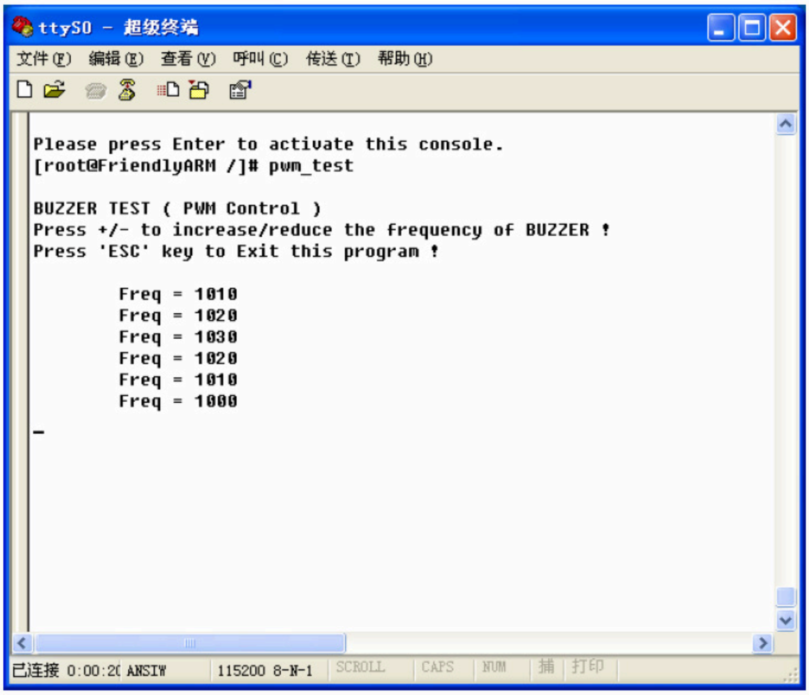


Result screen from serial port 2 or serial port 3:



2.4.11 Beeper test

Source code location:
Kernel-2.6.13/drivers/char/qq2440_pwm.c



2.4.12 LCD Backlight

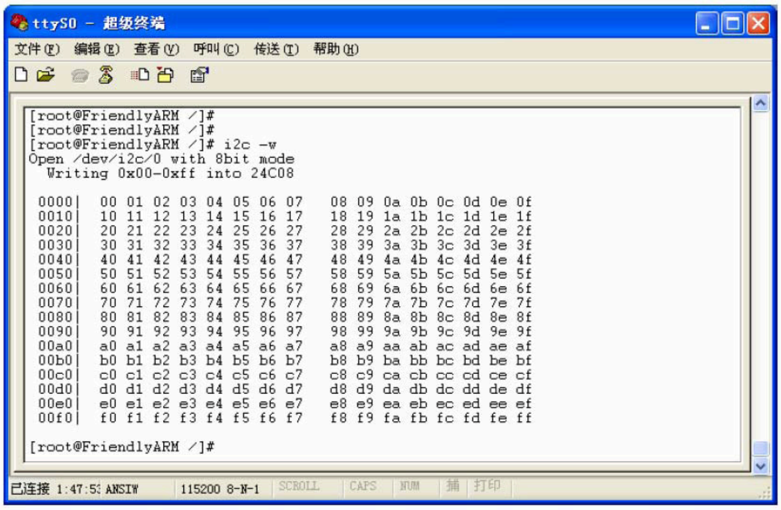
Source code location:
Kernel-2.6.13/drivers/char/mini2440_backlight.c

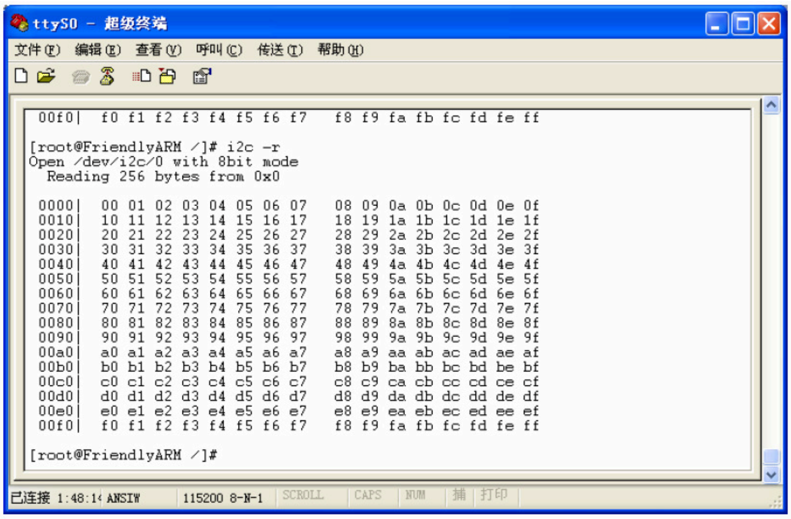
[root@FriendlyARM/]#bl 0

Close LCD backlight
[root@FriendlyARM/]#bl 1
Open LCD backlight
[root@FriendlyARM/]#

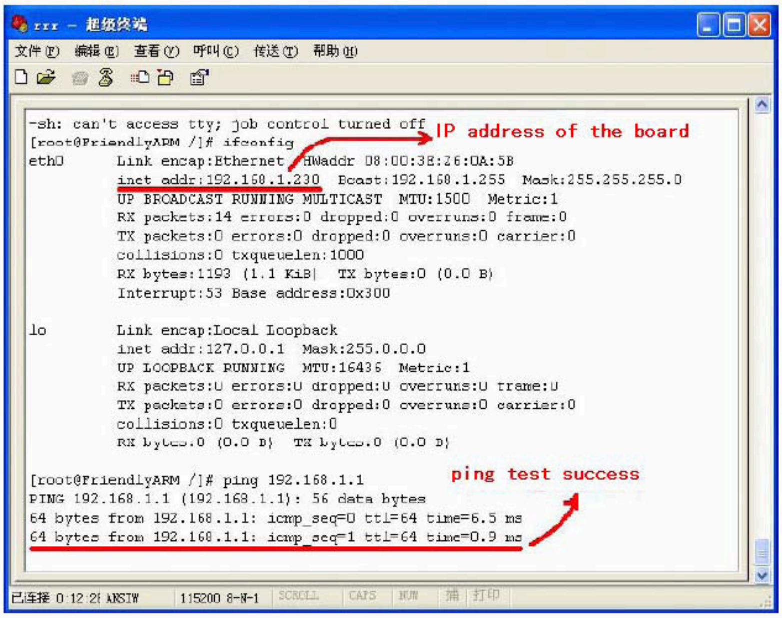
2.4.13 I2C Test

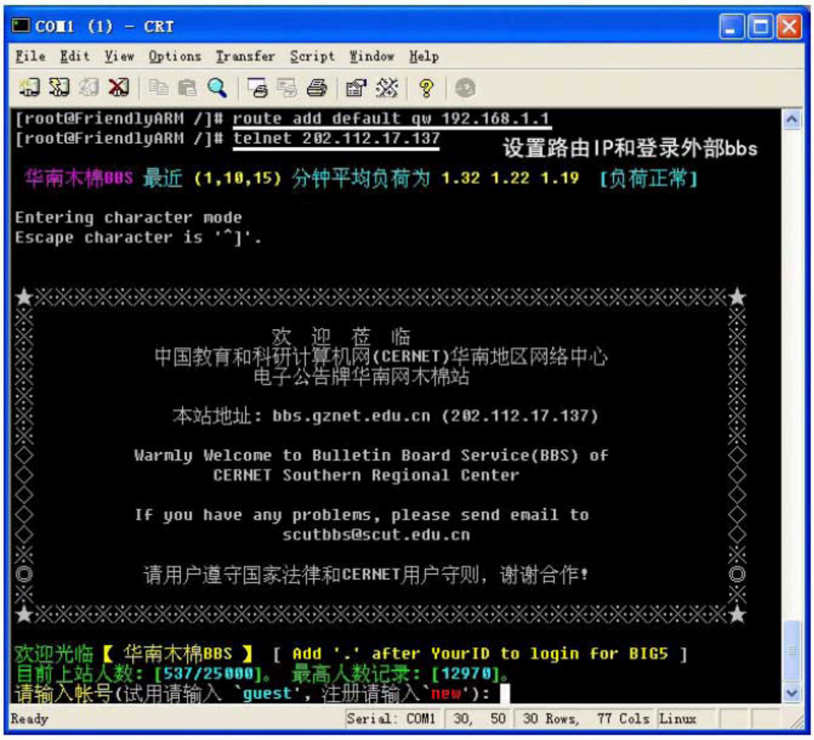
Source code location:
Kernel-2.6.13/drivers/i2c/busses/i2c-s3c2410.c





2.4.14 Telnet



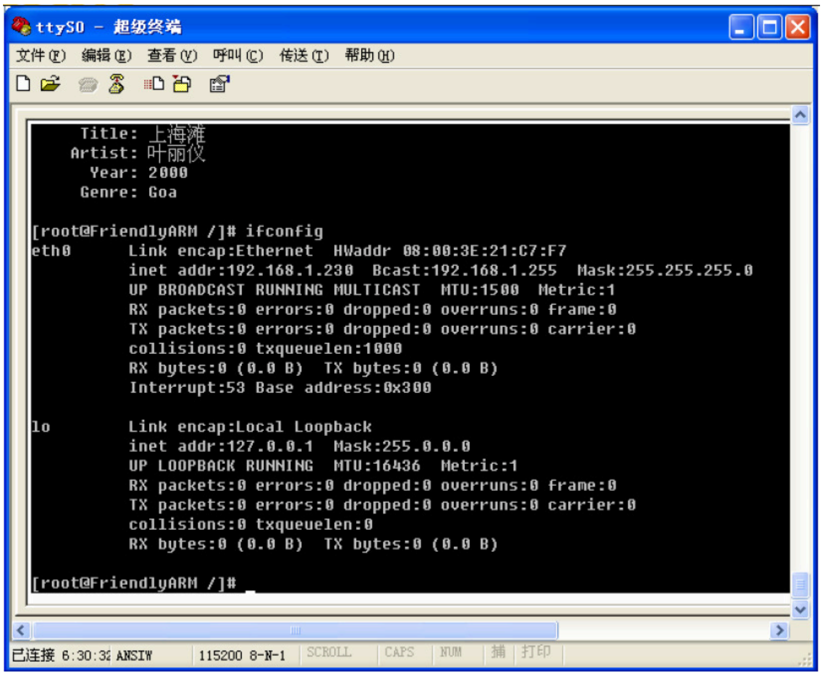


2.4.15 Telnetd

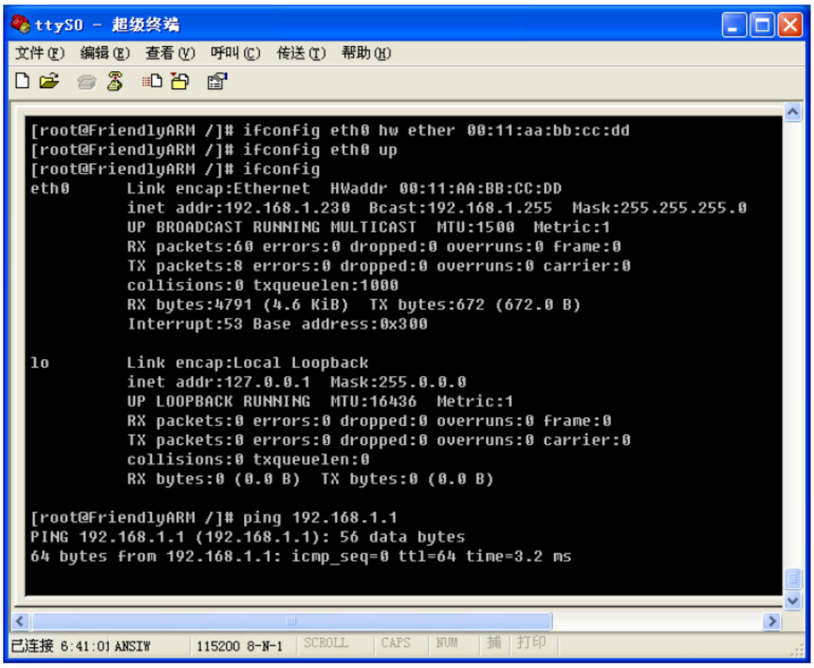
User can telnet to MINI2440 board by root without password.

2.4.16 How to modify MAC address

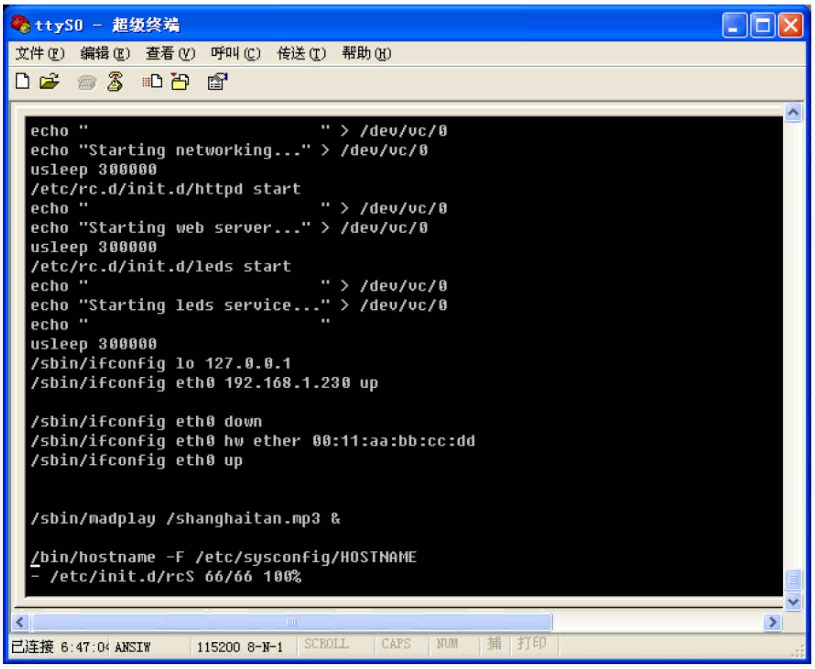
#ifconfig



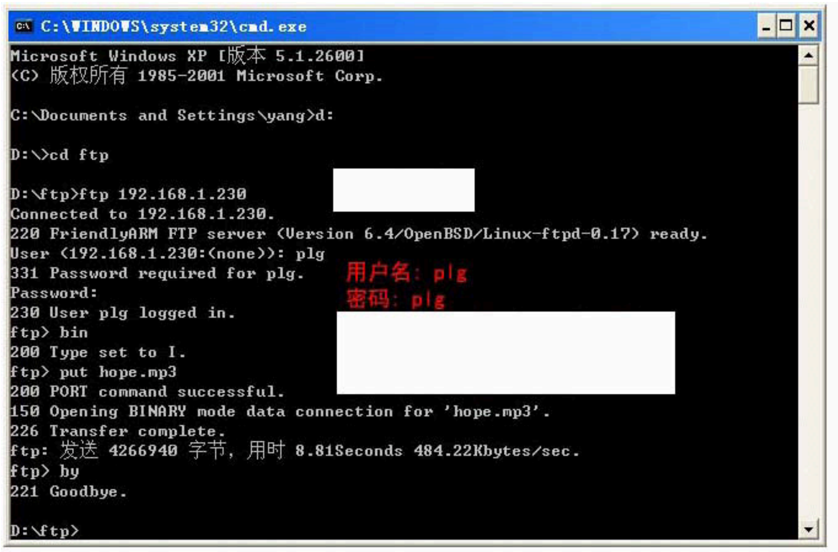
#ifconfig eth0 down
#ifconfig eth0 hw ether 00:11:AA:BB:CC:DD
#ifconfig eht0 up
#ifconfig



Change MAC address in startup script:


ttyS0 - 超级终端
文件(F) 编辑(E) 查看(V) 呼叫(C) 传送(T) 帮助(H)
echo "   " > /dev/vc/0
echo "Starting networking..." > /dev/vc/0
usleep 300000
/etc/rc.d/init.d/httpd start
echo "   " > /dev/vc/0
echo "Starting web server..." > /dev/vc/0
usleep 300000
/etc/rc.d/init.d/leds start
echo "   " > /dev/vc/0
echo "Starting leds service..." > /dev/vc/0
echo "   "
usleep 300000
/sbin/ifconfig lo 127.0.0.1
/sbin/ifconfig eth0 192.168.1.230 up
/sbin/ifconfig eth0 down
/sbin/ifconfig eth0 hw ether 00:11:aa:bb:cc:dd
/sbin/ifconfig eth0 up
/sbin/madplay /shanghaitan.mp3 &
/bin/hostname -F /etc/sysconfig/HOSTNAME
- /etc/init.d/rcS 66/66 100%
已连接 6:47:04 ANSIW 115200 8-N-1 SCROLL CAPS NUM 捕 打印

2.4.17 Ftpd


C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [版本 5.1.2600]
(C) 版权所有 1985-2001 Microsoft Corp.
C:\Documents and Settings\yang>d:
D:\>cd ftp
D:\ftp>ftp 192.168.1.230
Connected to 192.168.1.230.
220 FriendlyARM FTP server (Version 6.4/OpenBSD/Linux-ftpd-0.17) ready.
User (192.168.1.230:(none)): plg
331 Password required for plg.
用户名：plg
密码：plg
Password:
230 User plg logged in.
ftp> bin
200 Type set to I.
ftp> put hope.mp3
200 PORT command successful.
150 Opening BINARY mode data connection for 'hope.mp3'.
226 Transfer complete.
ftp: 发送 4266940 字节，用时 8.81Seconds 484.22Kbytes/sec.
ftp> by
221 Goodbye.
D:\ftp>

2.4.18 Remote LED control



Stop web server:

#/etc/rc.d/init.d/httpd stop

Start web server:

#/etc/rc.d/init.d/httpd start

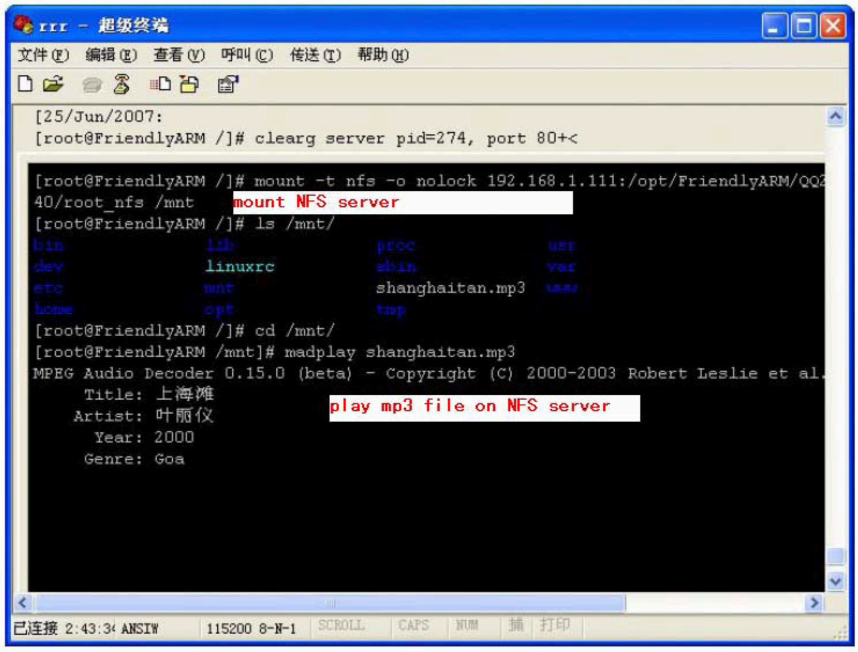
2.4.19 NFS

Assume NFS server is started on 192.168.1.111:

#mount –t nfs –o nolock 192.168.1.111:/opt/FriendlyARM/QQ2440V3/root_nfs /mnt

Unmount command:

#umount /mnt



2.4.20 RTC Setup

Use hwclock command to connect linux clock with MINI2440 hardware RTC chip:

(1) date –s 042916352007

(2) hwclock –w

(3) hwclock –s #this command had been put into /etc/init.d/rcS script for automatically run after power on.

2.4.21 Non-valitaile Data in Flash

Yaffs file system will not lost any data in case system power failure.

2.4.22 Automatic Script When Power Up

Please check with /etc/init.d/rcS

2.4.23 How to do Screen Shoot

#snapshot pic.png

2.5 Windows CE Function



2.5.1 USB Keyboard Simulation

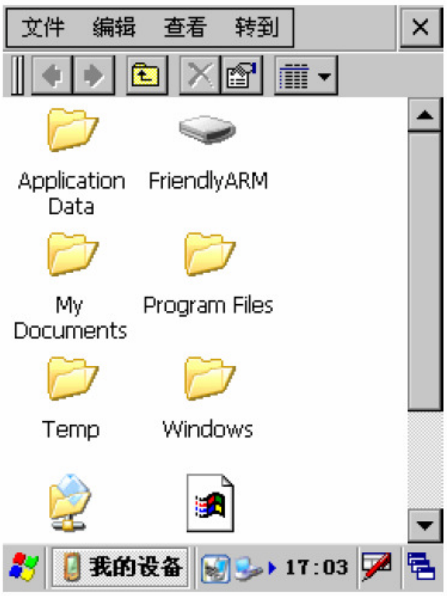
Source code location:
SMDK2440\DRIVERS\Userkey

This feature had been compiled in wince kernel by default, so it is available as soon as wince startup:
K1 - TAB
K2 - UP
K3 - ENTER
K4 - DOWN
K5 - LEFT
K6 - RIGHT





Enter “K3” to open “My Device”



2.5.2 LED Test

Double click on “QQ2440 test” to open LED test program

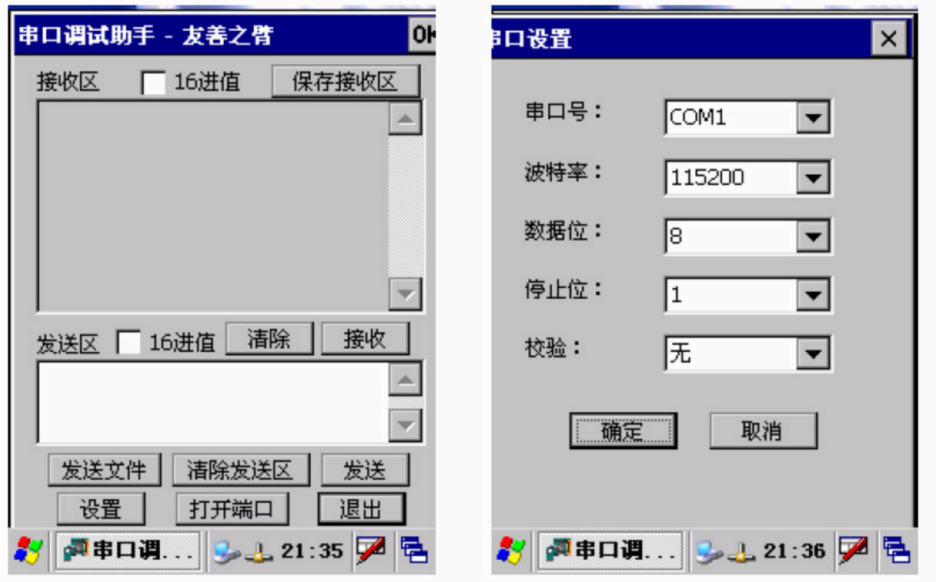


2.5.3 Screen Rotation



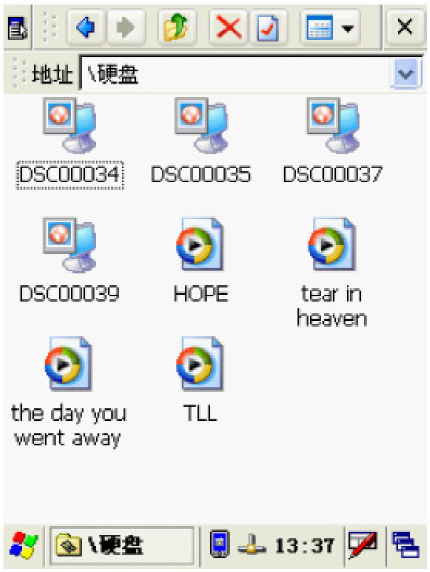
Source code location:
SMDK2440\DRIVERS\DISPLAY

2.5.4 COM Debugger



2.5.5 Use U-Disk

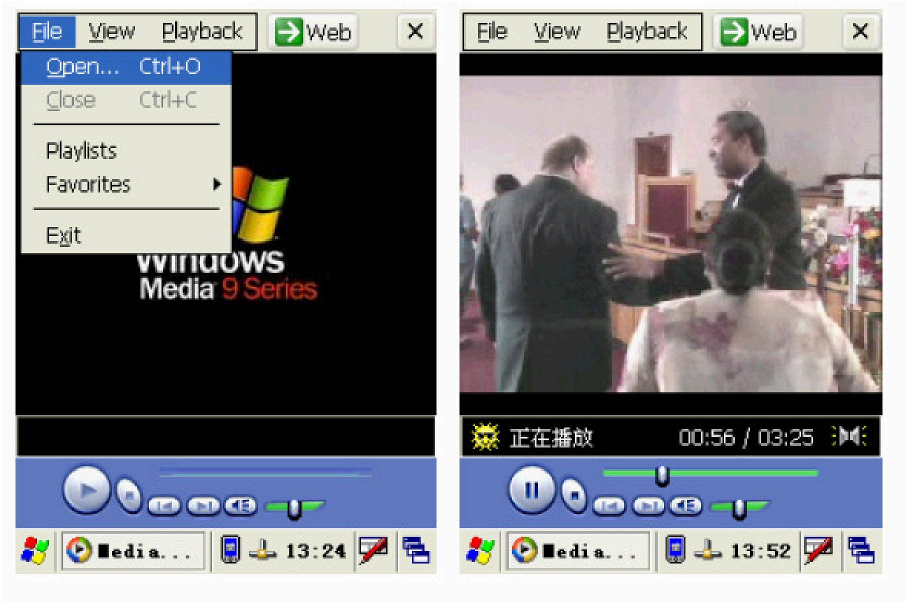




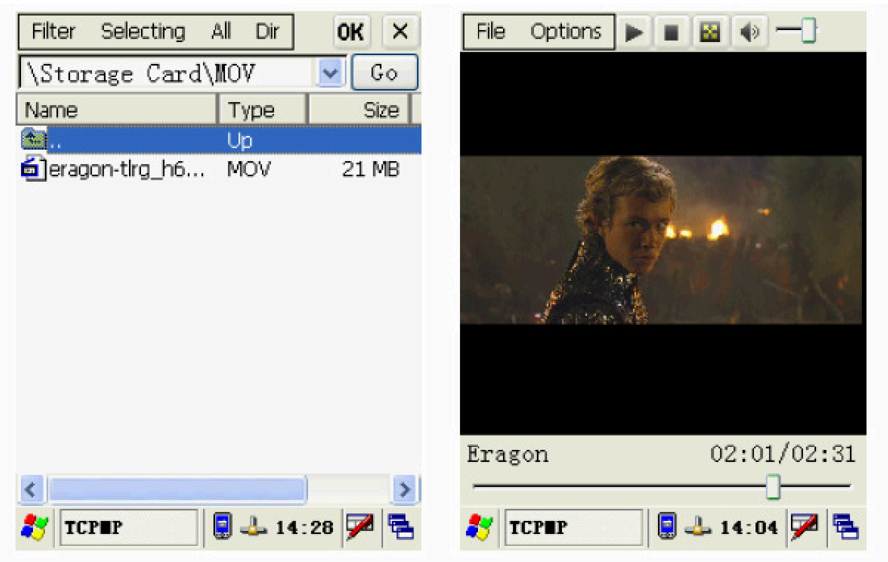
2.5.6 Use SD/MMC Card



2.5.7 Use Windows Media Player

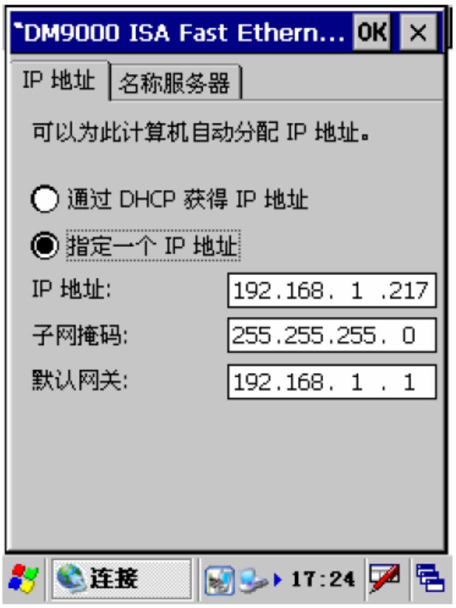


2.5.8 Use Super Player



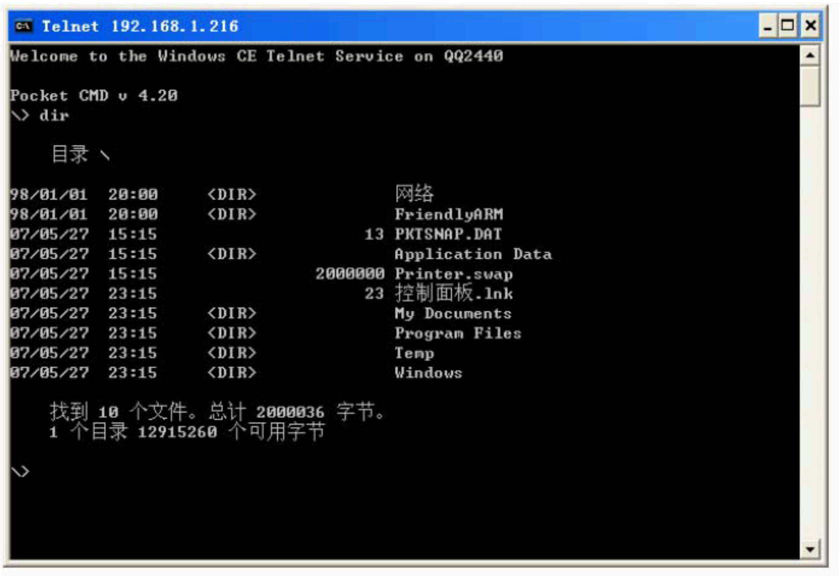
2.5.9 Ethernet Test





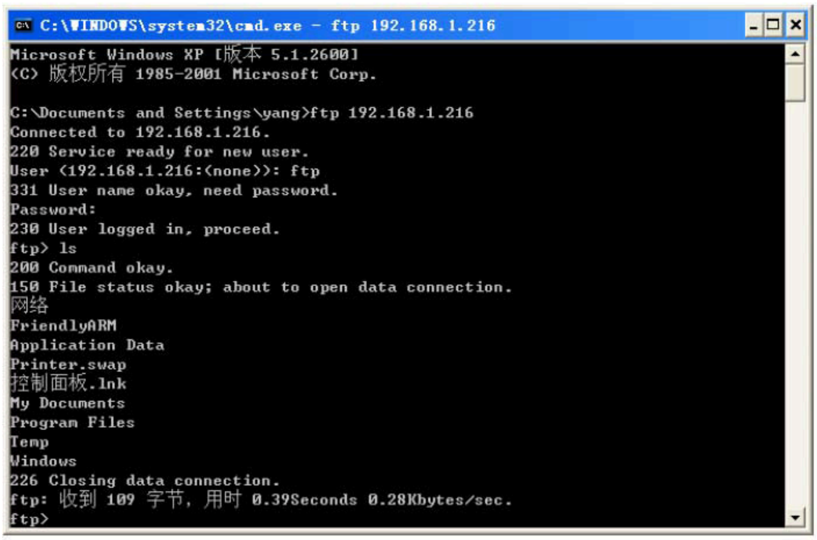
2.5.10 Telnet

A telnet server is configured in WinCE. The default IP address of Wince is 192.168.1.217. No password needed for telnet logon.



2.5.11 Ftp

A ftp server is configured in WinCE. The default IP address of Wince is 192.168.1.217. Account/password is ftp/ftp



2.5.12 Web Server

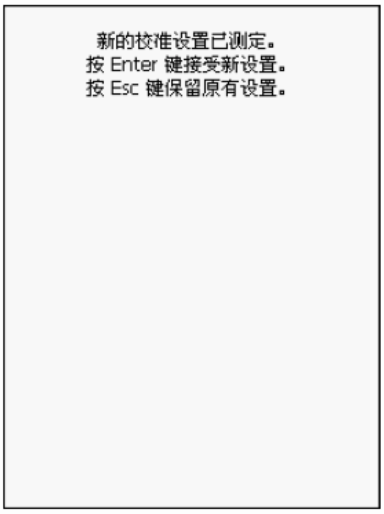


2.5.13 Touch Screen Calibration





将笔针轻而准确地在十字光标的中心点一下，
当目标在屏幕上移动时，重复该动作。
按 Esc 键取消。

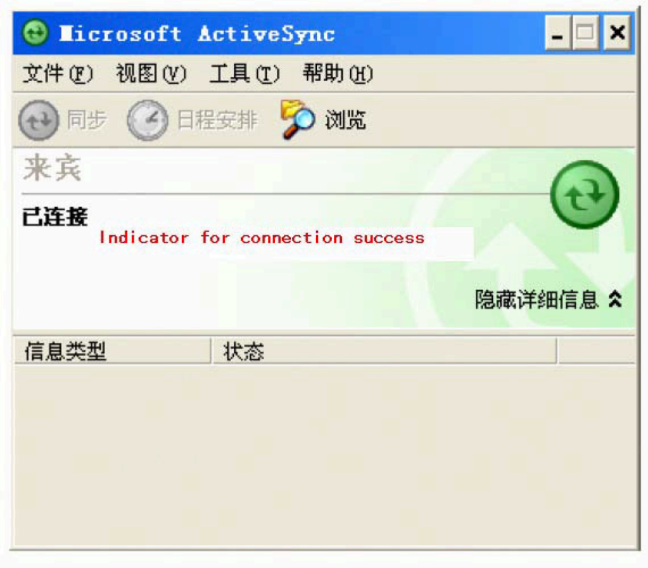


新的校准设置已测定。
按 Enter 键接受新设置。
按 Esc 键保留原有设置。



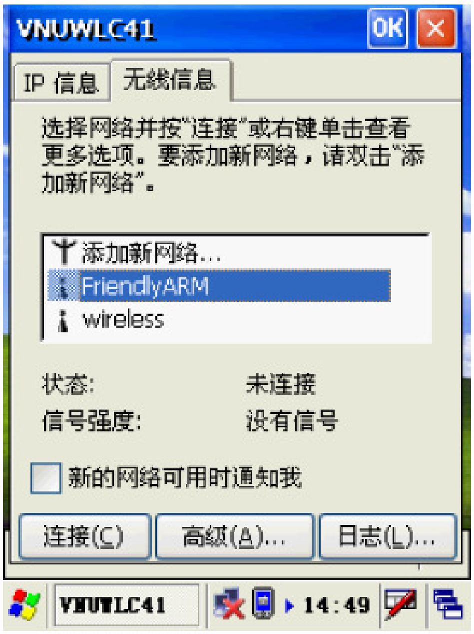
回收站
Media Player
我的电脑
Microsoft
程序(P)
收藏(A)
文档(D)
设置(S)
帮助(H)
运行(R)
挂起(U)
15:51

2.5.14 ActiveSync with PC



2.5.15 Wireless Lan Card Test

A wireless lan card driver is integrated in Wince(VNUWLC41).




无线属性
网络名称(N) (SSID):
FriendlyARM
这是一个特殊网络(H)
加密(E):
WEP
验证(H):
打开
网络密钥(K):
密钥索引(X):
1
密钥自动提供(A)
启用 802.1X 验证(U)
EAP 类型:
TLS
属性(P)
VNUWLC41
14:56
无线属性
网络名称(N) (SSID):
FriendlyARM
这是一个特殊网络(H)
加密(E):
WEP
验证(H):
打开
网络密钥(K):
12345
输入面板
VNUWLC41
14:58


VNUWLC41
IP 信息
无线信息
选择网络并按"连接"或右键单击查看更多选项。要添加新网络，请双击"添加新网络"。
添加新网络...
FriendlyARM (首选)
wireless
状态:
已连接到 Friendl...
信号强度:
没有信号
新的网络可用时通知我
连接(C)
高级(A)...
日志(L)...
VNUWLC41
15:10



2.6 Install BIOS by SJF2440

SJF2440 is a tool from Samsung to burn flash on development board. It can support K9F1208 Nand Flash, AMD29LV800BB Nor Flash, etc.

Note: We suggest to do these operations on a PC with intel chipset mother board. Sometime JTAG board with parallel port will fail on the mother board with chipset from other vendors

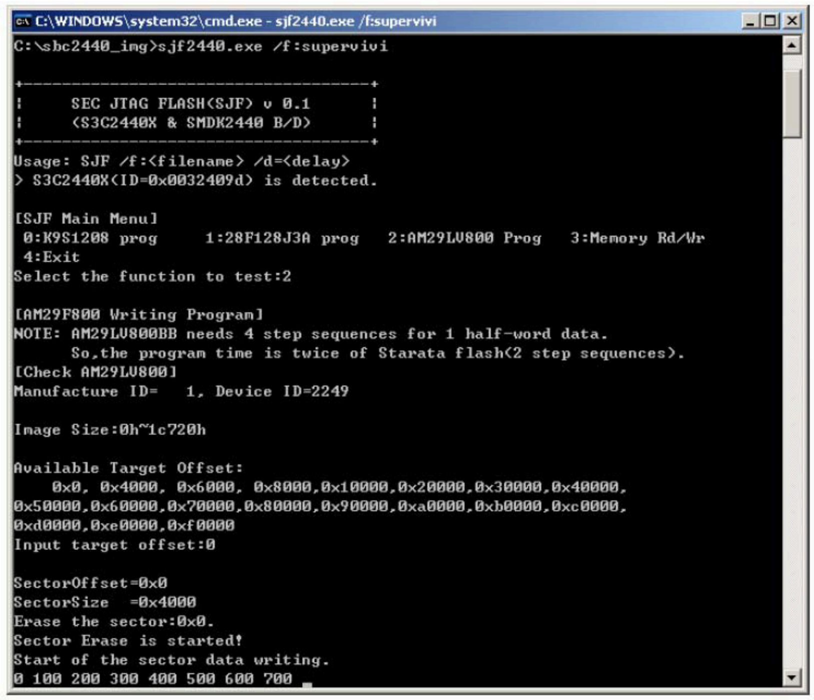
2.6.1 Install GIVEIO Driver

2.6.2 Burn BIOS

Note: The development board had been pre-loaded BIOS before shipment. We suggest you do not try the procedures in this section if you are not familiar with S3C2440 and low level details of the board.

First of all, connect JTag board to MINI2440 jtag port and connect other end of JTag board to your PC parallel port with GIVEIO driver already installed.

(1) Copy the folder \windows tools\SJF2440 on CD-ROM to PC. Double click on SJF2440_supervivi.bat to start. Select function "2" and then select Nor Flash(AM29LV160) to start burn.



(3) With prompt of “Available Target offset”, input offset “0”, start to burn. Select “2” after burn success.

3. OS Installation

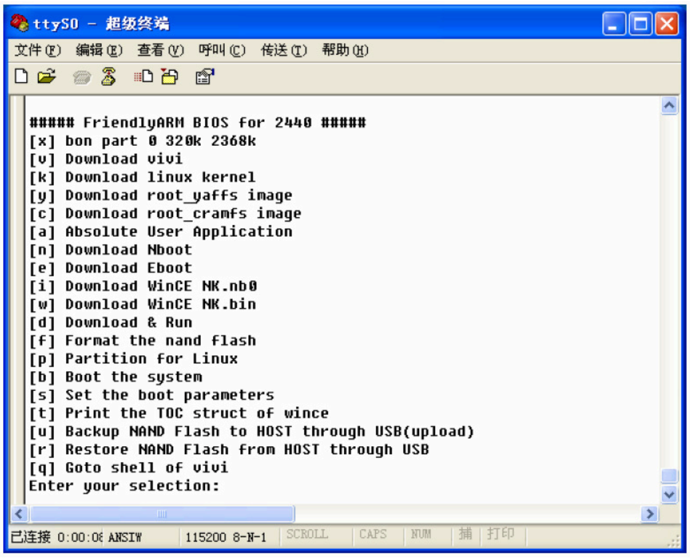
Note:

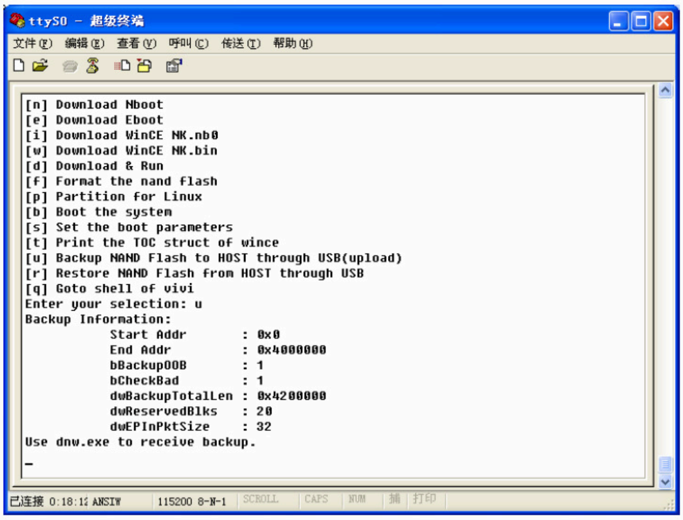
To avoid Windows “blue screen failure” during USB downloading:

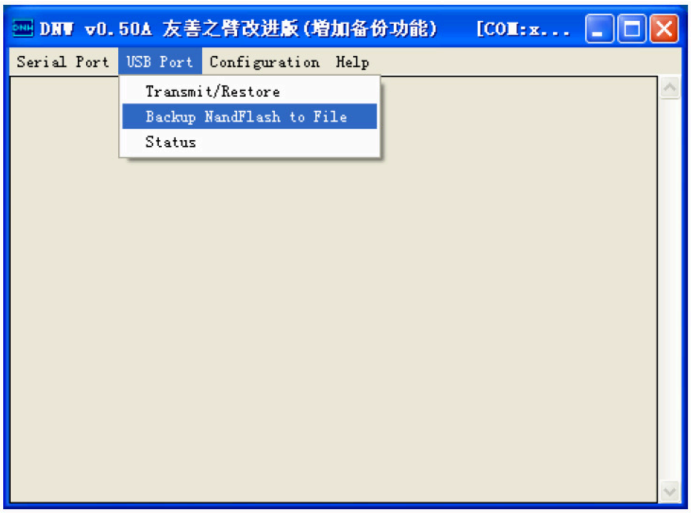
1. Do not plug in USB cable before target board power on
2. Do not plug in USB cable when reset target board
3. Plug in USB cable after supervivi main menu appears
4. Plug out USB cable after programming success
5. Current Linux kernel does not support USB device
6. Plug in USB cable after wince startup

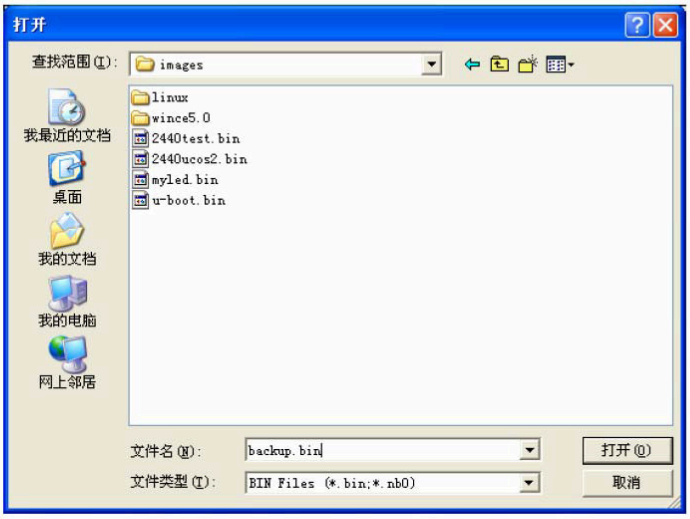
3.1 Backup and Restore System

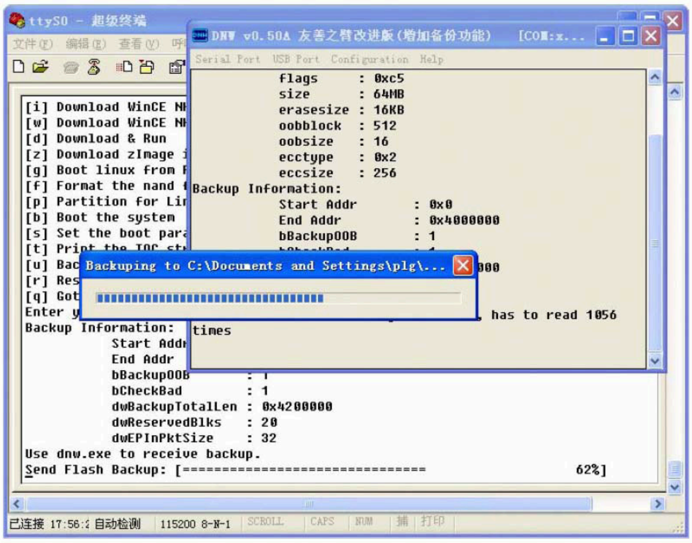
Backup content in Nand Flash

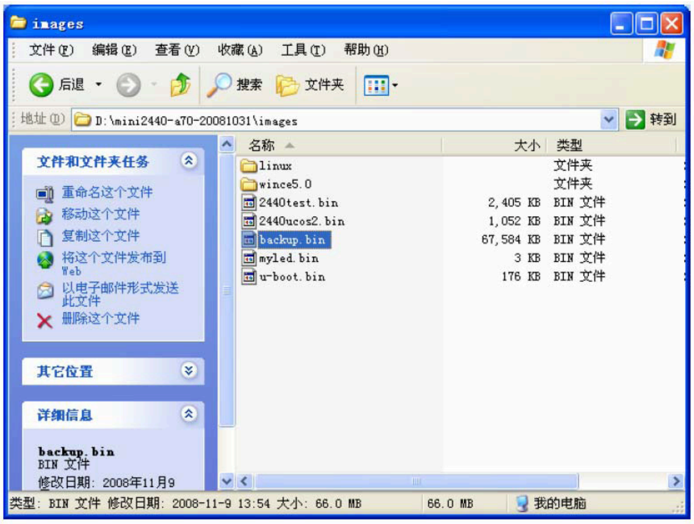



ttyS0 - 超级终端
文件(F) 编辑(E) 查看(V) 呼叫(C) 传送(T) 帮助(H)
[n] Download Nboot
[e] Download Eboot
[i] Download WinCE NK.nb0
[w] Download WinCE NK.bin
[d] Download & Run
[f] Format the nand flash
[p] Partition for Linux
[b] Boot the system
[s] Set the boot parameters
[t] Print the TOC struct of wince
[u] Backup NAND Flash to HOST through USB(upload)
[r] Restore NAND Flash from HOST through USB
[q] Goto shell of vivi
Enter your selection: u
Backup Information:
Start Addr : 0x0
End Addr : 0x4000000
bBackupOOB : 1
bCheckBad : 1
dwBackupTotalLen : 0x4200000
dwReservedBlks : 20
dwEPInPktSize : 32
Use dnw.exe to receive backup.
已连接 0:18:1 ANSIW 115200 8-N-1 SCROLL CAPS NUM 捕 打印

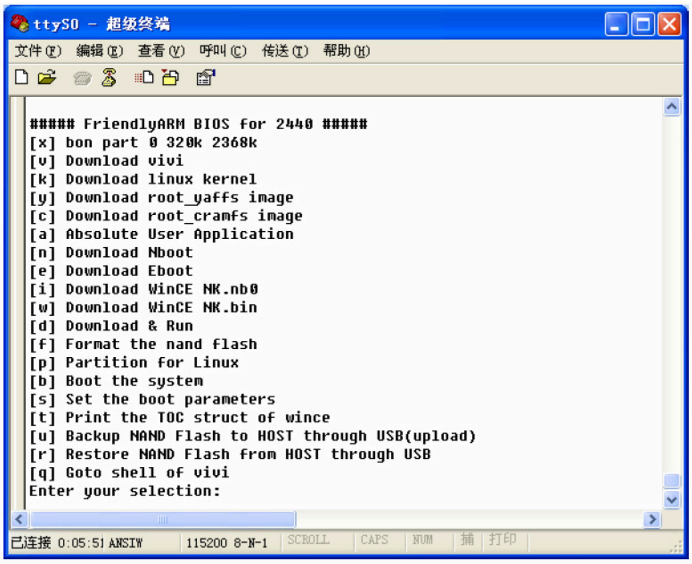

DNW v0.50A 友善之臂改进版(增加备份功能) [COM:x...
Serial Port
USB Port
Configuration
Help
Transmit/Restore
Backup NandFlash to File
Status

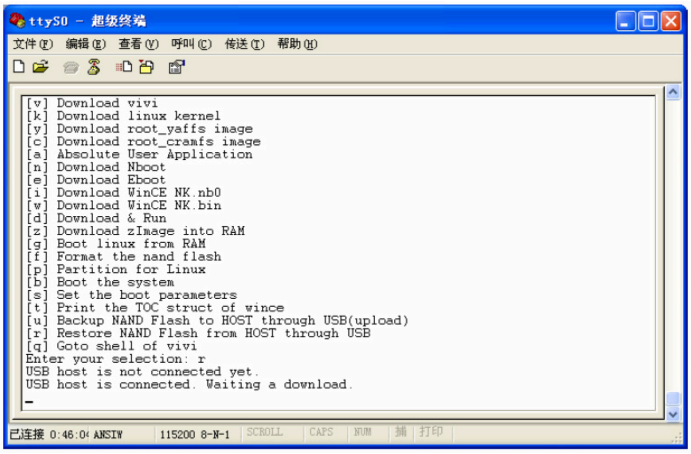

打开
查找范围(I):
images
linux
wince5.0
2440test.bin
2440ucos2.bin
myled.bin
u-boot.bin
我最近的文档
桌面
我的文档
我的电脑
网上邻居
文件名(N):
backup.bin
文件类型(T):
BIN Files (*.bin;*.nb0)
打开(O)
取消

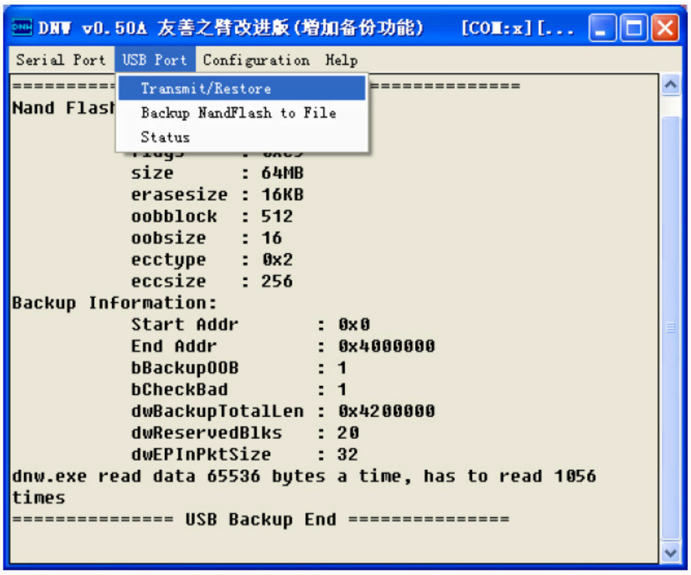

ttyS0 - 超级终端
DNW v0.50A 友善之臂改进版(增加备份功能) [COM:x...
Serial Port USB Port Configuration Help
flags : 0xc5
size : 64MB
erasesize : 16KB
oobblock : 512
oobsize : 16
ecctype : 0x2
eccsize : 256
Backup Information:
Start Addr : 0x0
End Addr : 0x4000000
bBackupOOB : 1
Backuping to C:\Documents and Settings\plg\...
has to read 1056
times
[i] Download WinCE NK
[w] Download WinCE NK
[d] Download & Run
[z] Download zImage
[g] Boot linux from
[f] Format the nand
[p] Partition for Li
[b] Boot the system
[s] Set the boot para
Backup Information:
bCheckBad : 1
dwBackupTotalLen : 0x4200000
dwReservedBlks : 20
dwEPInPktSize : 32
Use dnw.exe to receive backup.
Send Flash Backup: [============================== 62%]
115200 8-N-1

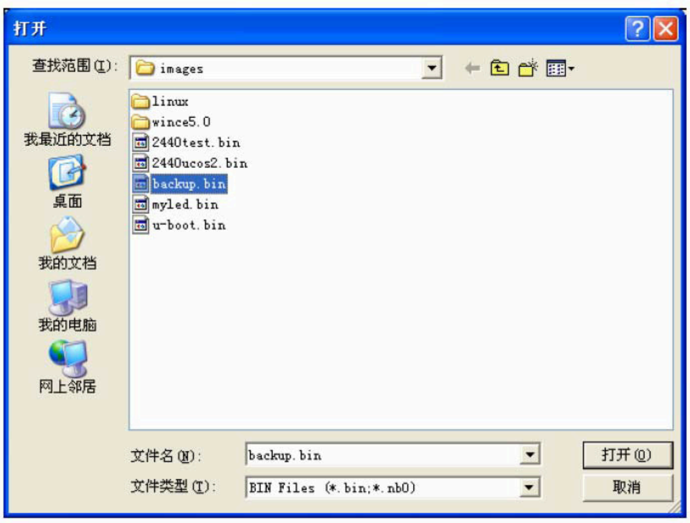

images
文件(F) 编辑(E) 查看(V) 收藏(A) 工具(T) 帮助(H)
后退 搜索 文件夹
地址(D) D:\mini2440-a70-20081031\images
转到
文件和文件夹任务
重命名这个文件
移动这个文件
复制这个文件
将这个文件发布到 Web
以电子邮件形式发送此文件
删除这个文件
其它位置
详细信息
backup.bin
BIN 文件
修改日期: 2008年11月9
名称 大小 类型
linux 文件夹
wince5.0 文件夹
2440test.bin 2,405 KB BIN 文件
2440ucos2.bin 1,052 KB BIN 文件
backup.bin 67,584 KB BIN 文件
myled.bin 3 KB BIN 文件
u-boot.bin 176 KB BIN 文件
类型: BIN 文件 修改日期: 2008-11-9 13:54 大小: 66.0 MB
66.0 MB
我的电脑

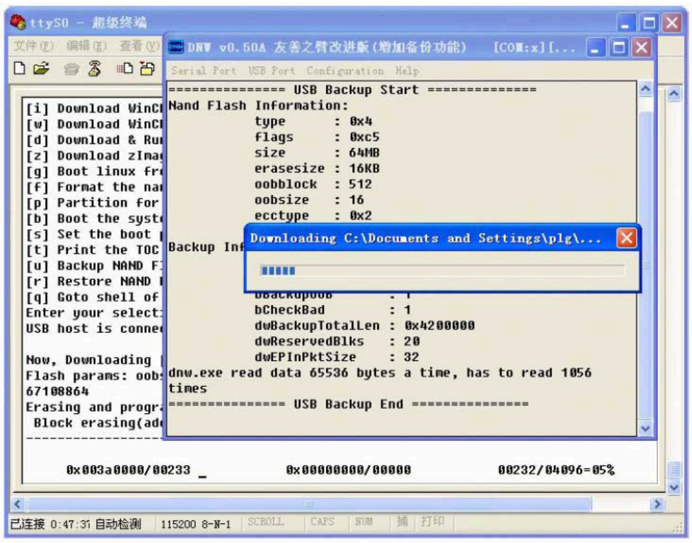
Restore Nand Flash











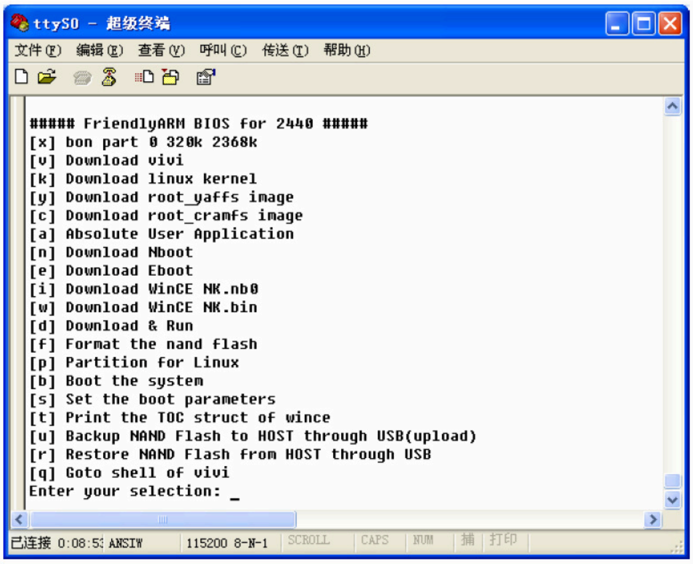
3.2 Install Linux

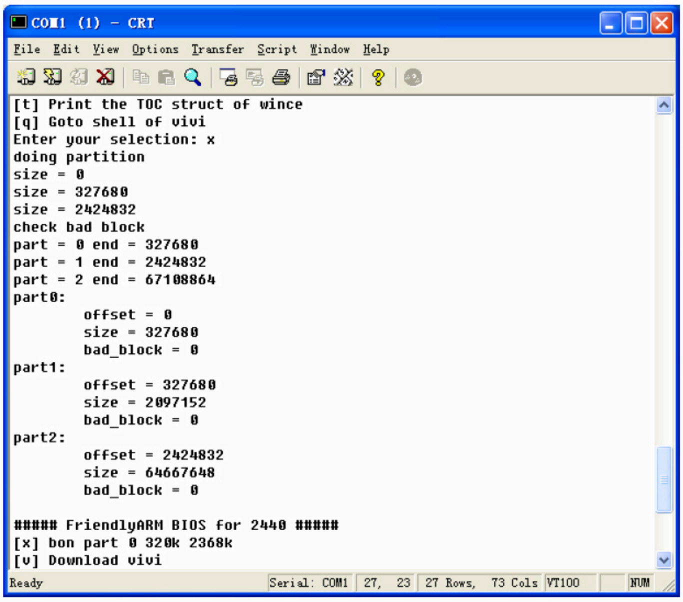
Linux binary image file is in image/linux folder. Connect MINI2440 board with USB cable and power on the board to enter supervivi main menu. Watch indicator on DNW title bar to check if USB connection success:



Major steps for linux installation:
(1) format Nand Flash(make partition)
(2) Install bootloader
(3) Install kernel
(4) Install file system

3.2.1 Nand Flash Make Partition

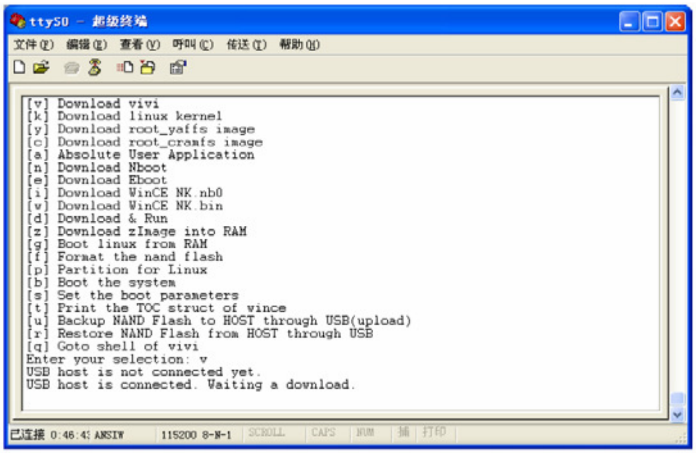




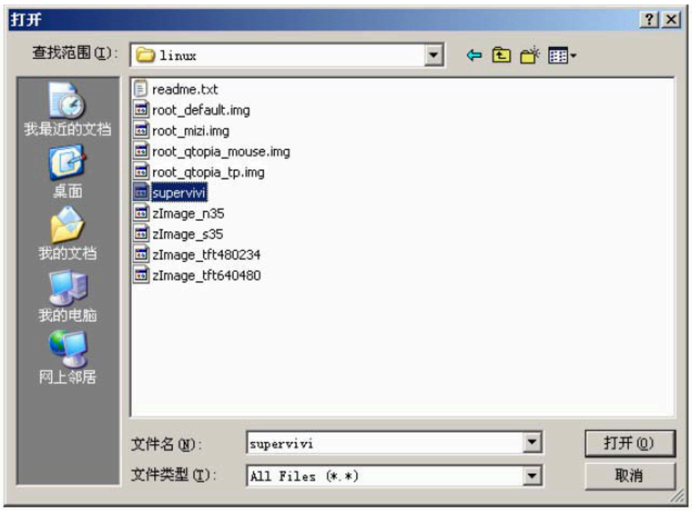
3.2.2 BIOS Recovery

Caution: The operations in section 3.2.1 will erase all data in Nand Flash. Please do not shut off the power or you will have to re-load supervivi in Nand Flash.

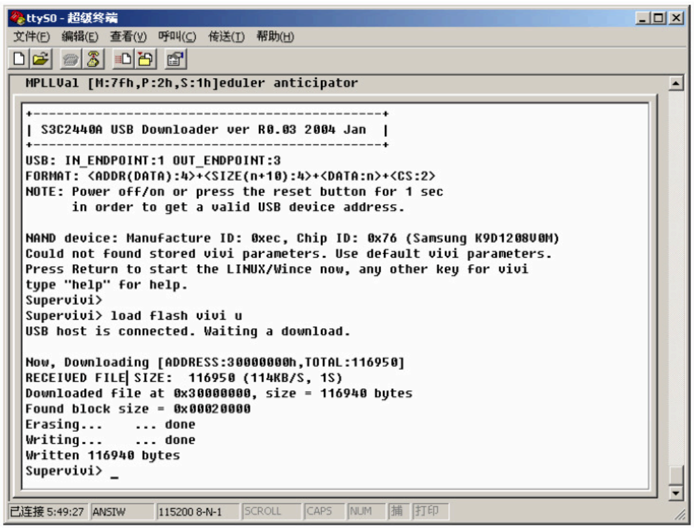




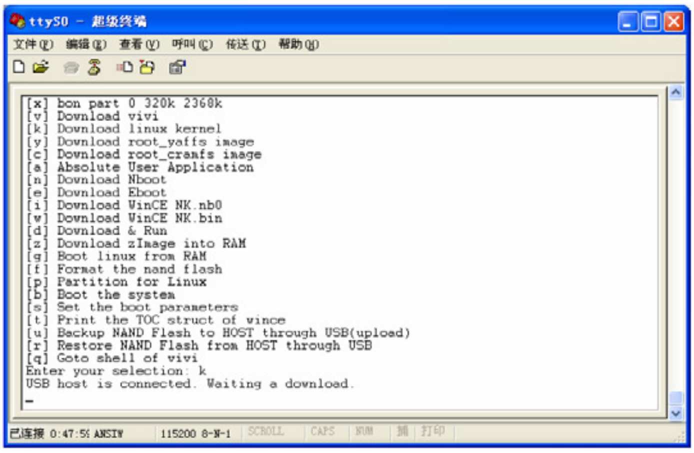
And then click USB Port->Transmit to download supervivi image file.



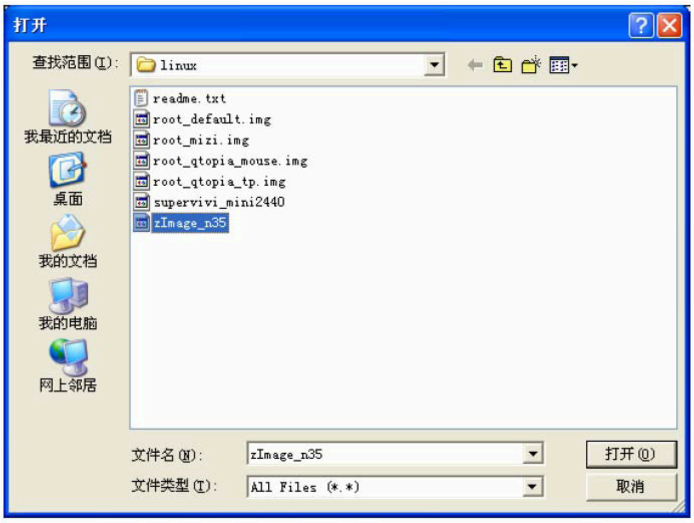
After successfully downloading, BIOS will update this new supervivi image to Nand Flash.

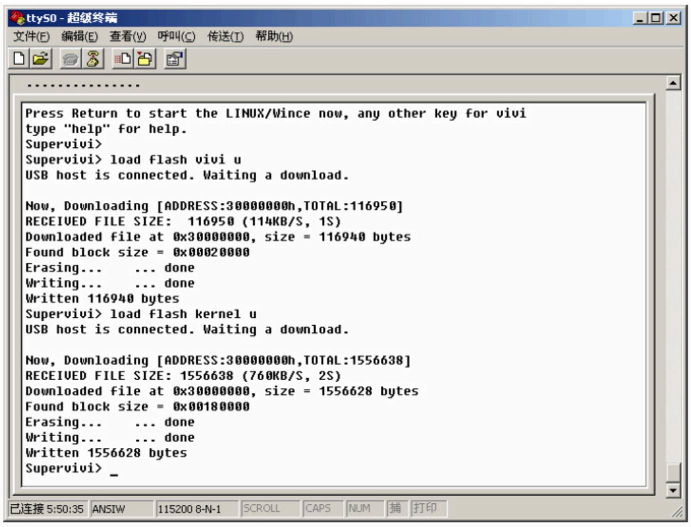


3.2.3 Install Kernel

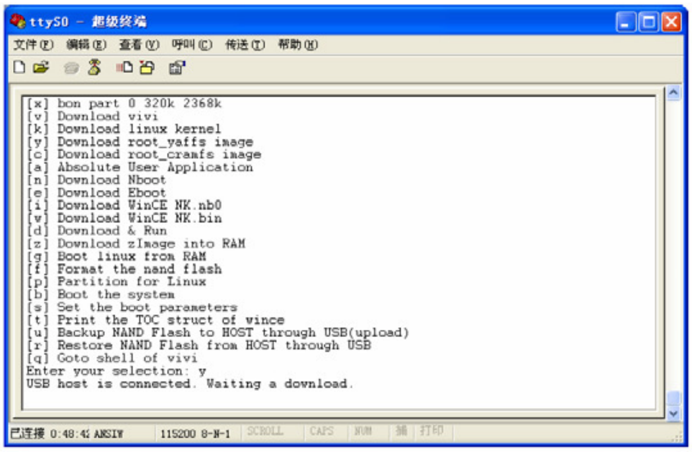


Click DNW USB Port->Transmit to select which kernel image file you want to download. Linux kernel image will be updated to Nand Flash after successfully downloading.

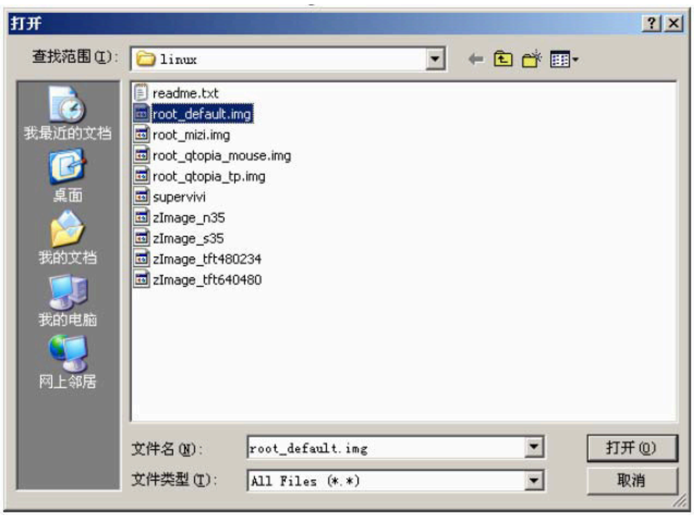


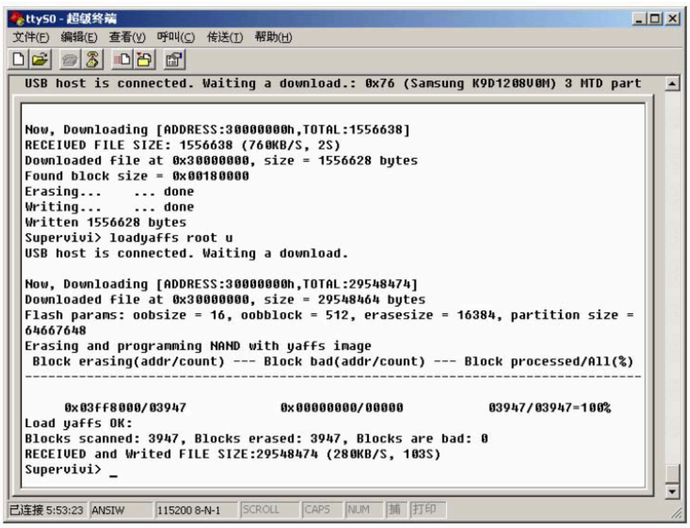


3.2.4 Install yaffs



Click DNW USB Port->Transmit to select which file system image file you want to download. Linux file system image will be updated to Nand Flash after successfully downloading.





3.2.5 Start OS

Please un-plug USB cable after system successfully updated
Input [b] under BIOS or power cycle/reset the board. Supervivi will restart and boot linux automatically.

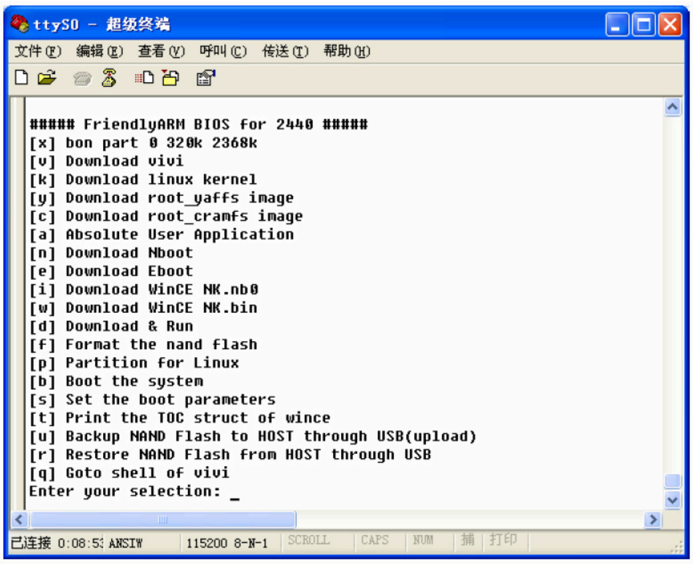
3.3 Install Wince

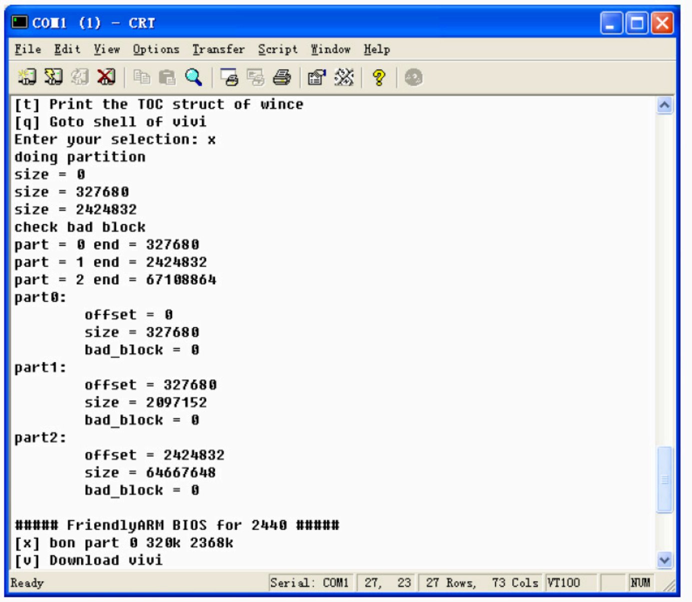
Wince binary image file is on image/wince folder. Connect MINI2440 board with USB cable and power on the board to enter supervivi main menu. Watch indicator on DNW title bar to check if USB connection success:



Major steps for Wince installation:
(1) format Nand Flash(make partition)
(2) Install bootloader
(3) Install Eboot
(4) Install Wince

3.3.1 Nand Flash Make Partition

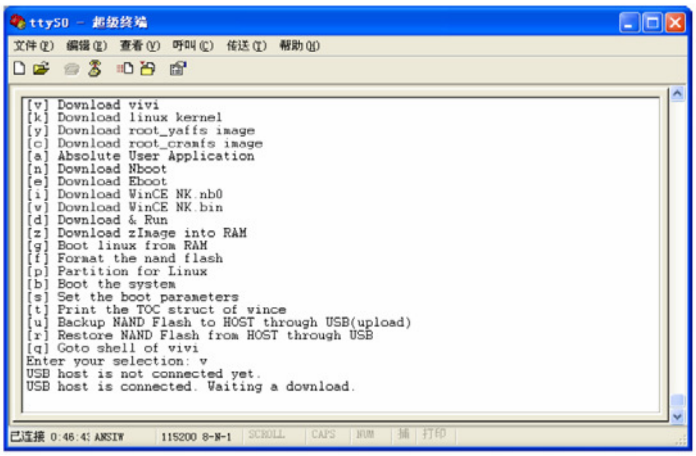




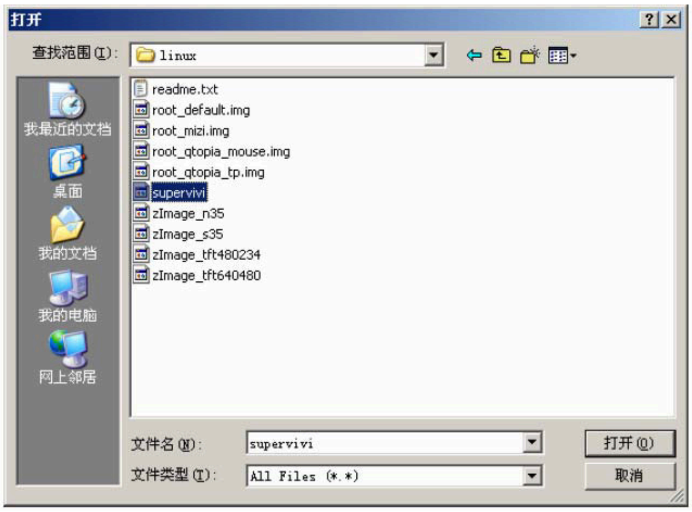
3.3.2 BIOS Recovery

Caution: The operations in section 3.3.1 will erase all data in Nand Flash. Please do not shut off the power or you will have to re-load supervivi in Nand Flash.

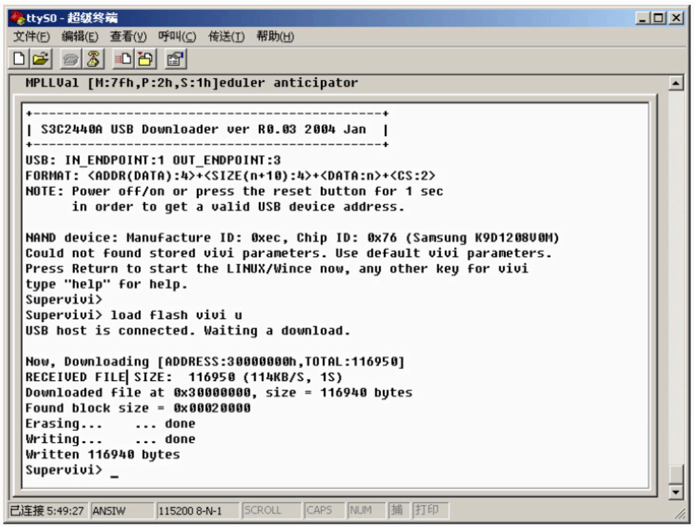




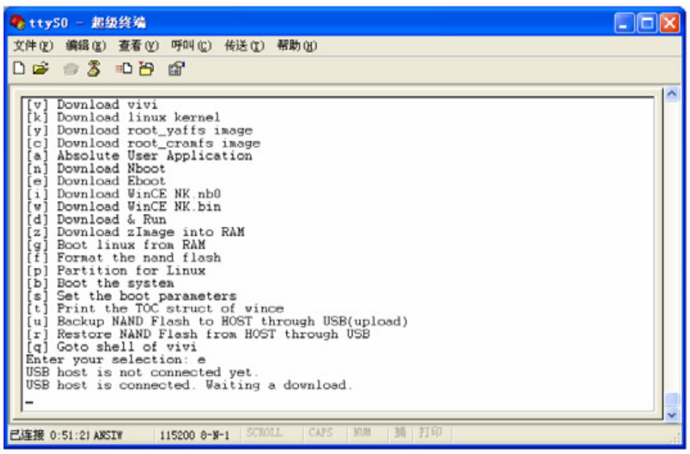
And then click USB Port->Transmit to download supervivi image file.

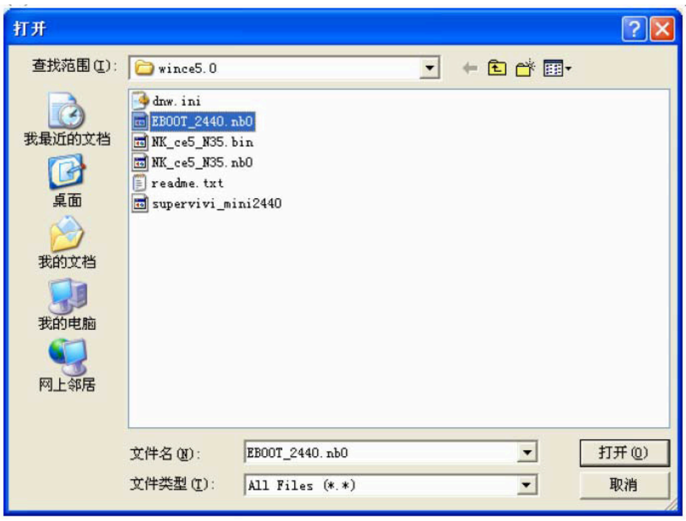


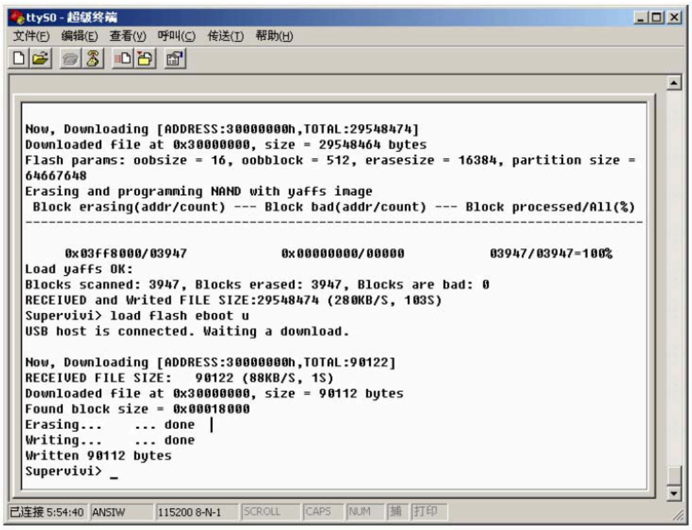
After successfully downloading, BIOS will update this new supervivi image to Nand Flash.



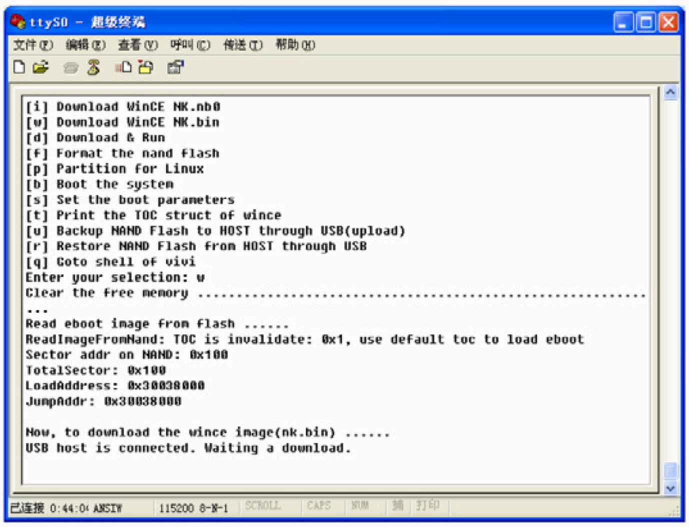
3.3.3 Install EBoot



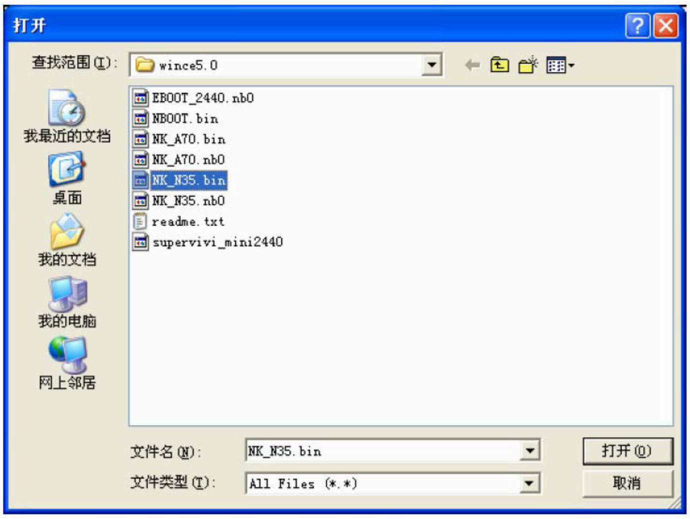




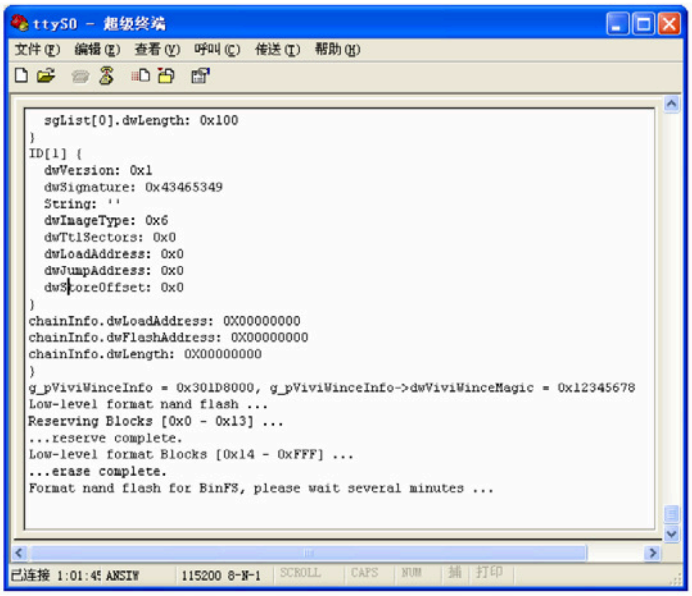
3.3.4 Install Kernel



Eboot will prompt user to download wince from USB. Click USB Port->Transmit to select Wince image file to start download.



Eboot will low level format Nand Flash and then convert BinFS. After formatting successfully done, Eboot will update windows CE image file to Nand Flash. WinCE will automatically start up finally.



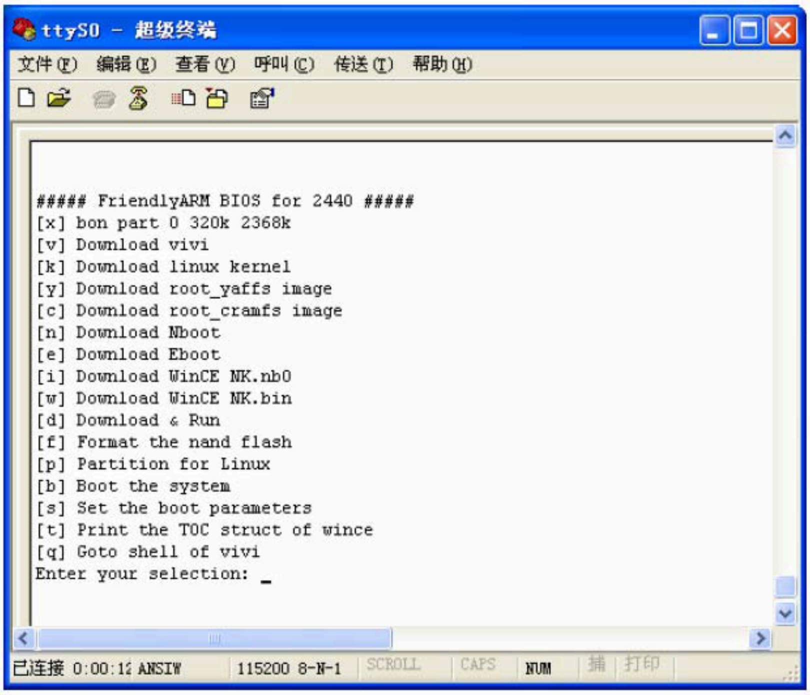
Appendix: OS Installation by Command Line

Note: We recommend you use supervivi main menu to update software but we still list command line commands here for your reference.

1. How to enter command line mode

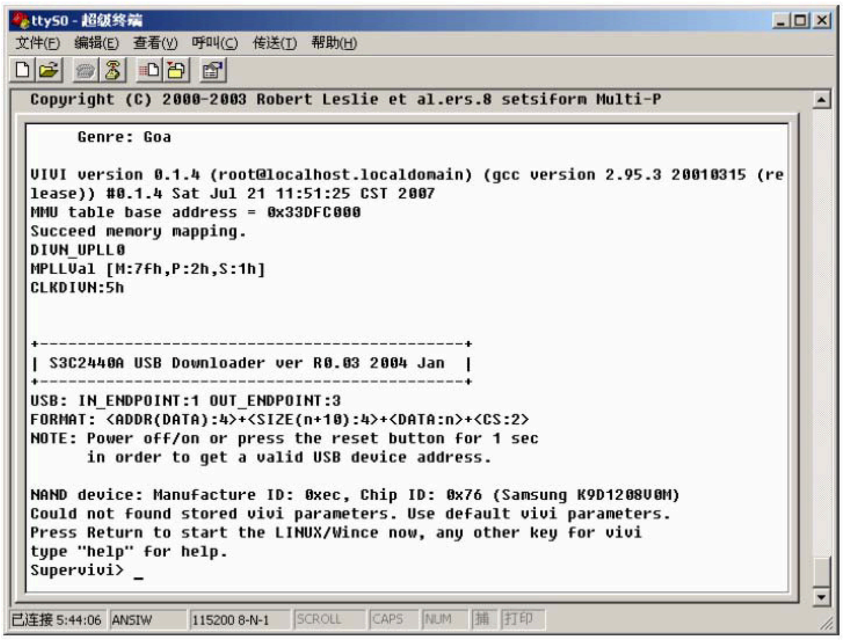
Supervivi will enter main menu when board is set to Nor Flash boot mode. Select function [q] to enter command line mode

1.1 From BIOS main menu



1.2 From Nand Flash boot

User can also enter supervivi command line interface when board is booting from Nand Flash. Connect the board with PC by serial cable and USB cable. Open Windows hypterminal and DNW. Hold on space bar in Hypterminal. Power on MINI2440 and then you can enter command line interface:



2. Linux Installation

Linux binary image file is on image/linux folder. Connect MINI2440 board with USB cable and power on the board to enter supervivi command line mode. Watch indicator on DNW title bar to check if USB connection success:



Major steps for linux installation:
(1) format Nand Flash(make partition)
(2) Install bootloader
(3) Install kernel
(4) Install file system

2.1 Nand Flash Make Partition

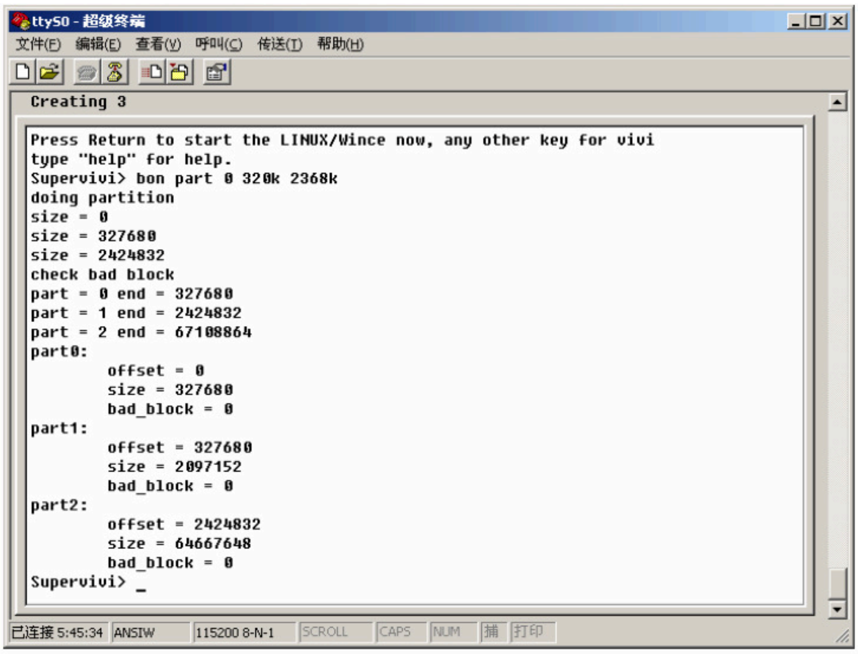
Under BIOS: **bon part 0 320k 2368k**

Description: bon is command to make partition, the command above is to make 3 partition from Nand Flash address 0:

0-320k: size is 320k

320k-2368k: size is 2M

2368k-64M: size is 62M

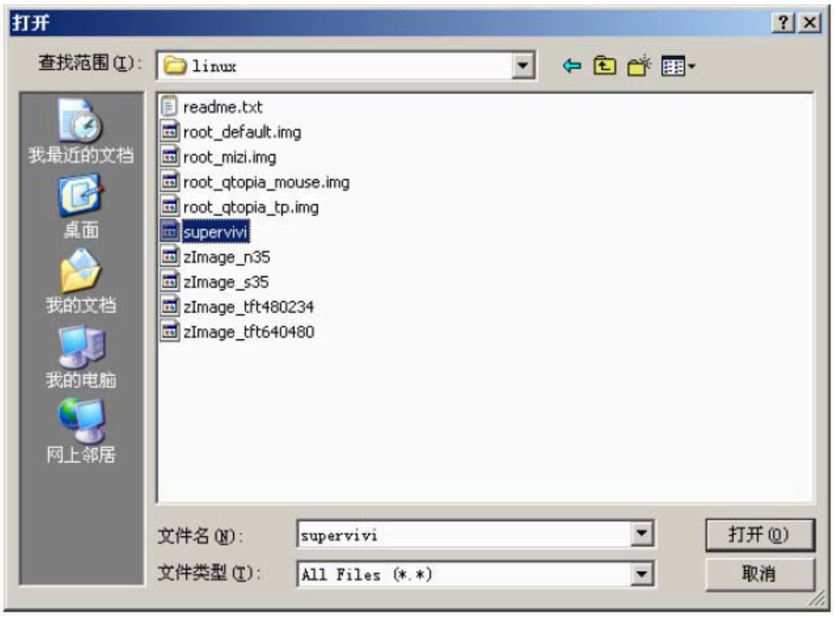


2.2 BIOS Recovery

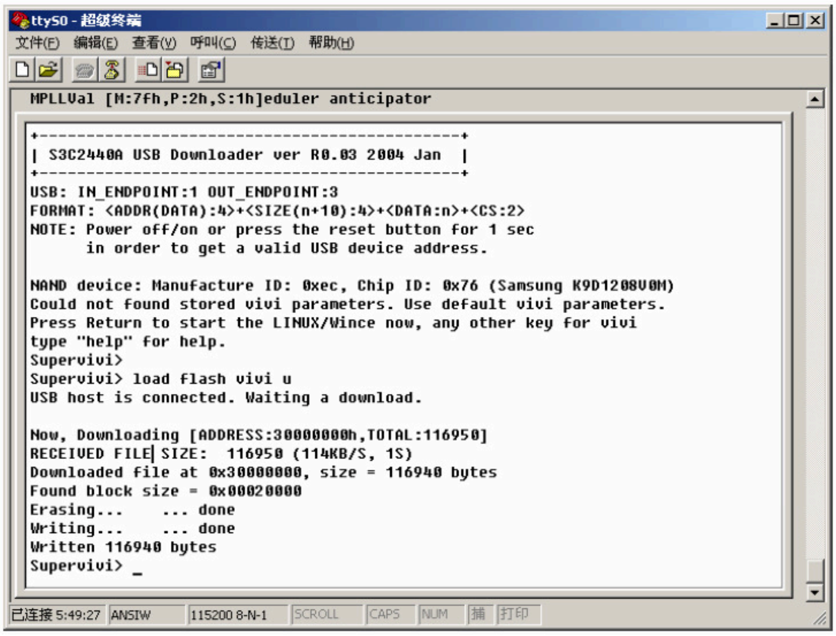
Caution: The operations in section 2.1 will erase all data in Nand Flash. Please do not shut off the power or you will have to re-load supervivi in Nand Flash.

Input: **load flash vivi u**

And then click USB Port->Transmit to download supervivi image file.



After successfully downloading, BIOS will update this new supervivi image to Nand Flash.

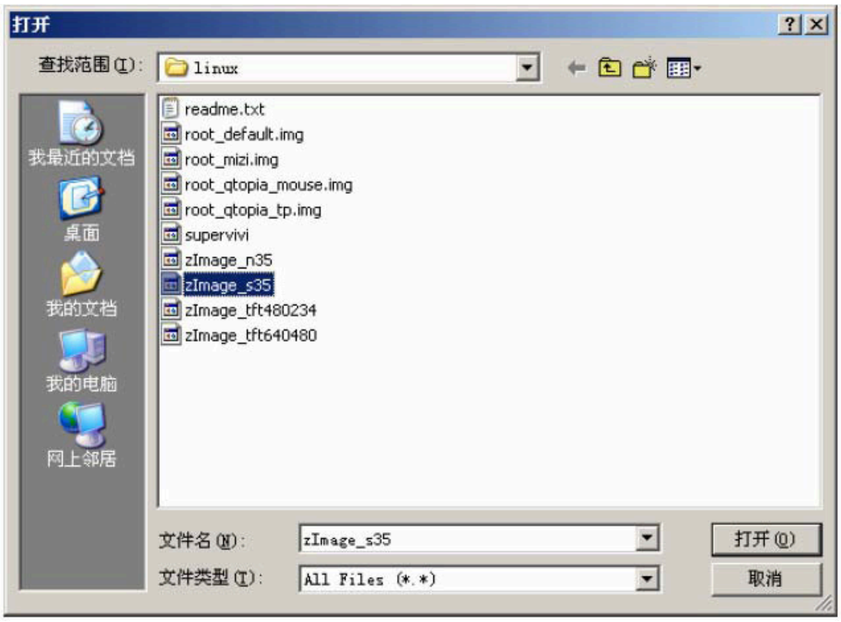


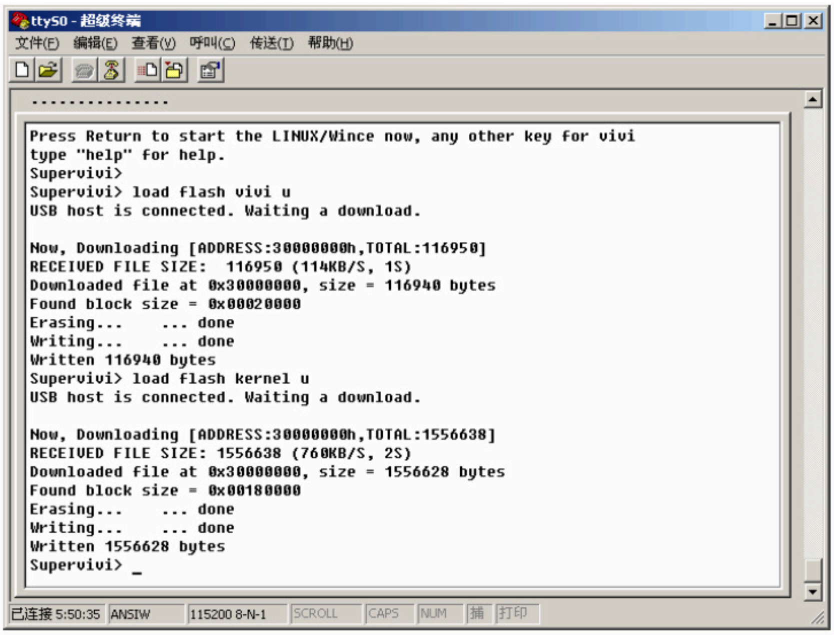
Note: User can also use **load flash vivi x** command to download and update suervivi by xmodem prototype from hypterminal.

2.3 Install Linux

Input: **load flash kernel u**

Click DNW USB Port->Transmit to select which kernel image file you want to download. Linux kernel image will be updated to Nand Flash after successfully downloading.



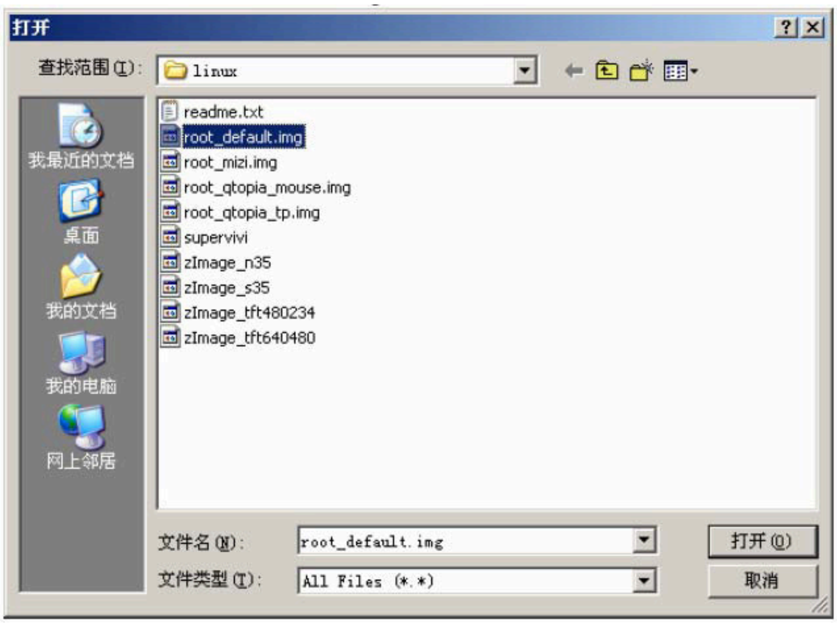


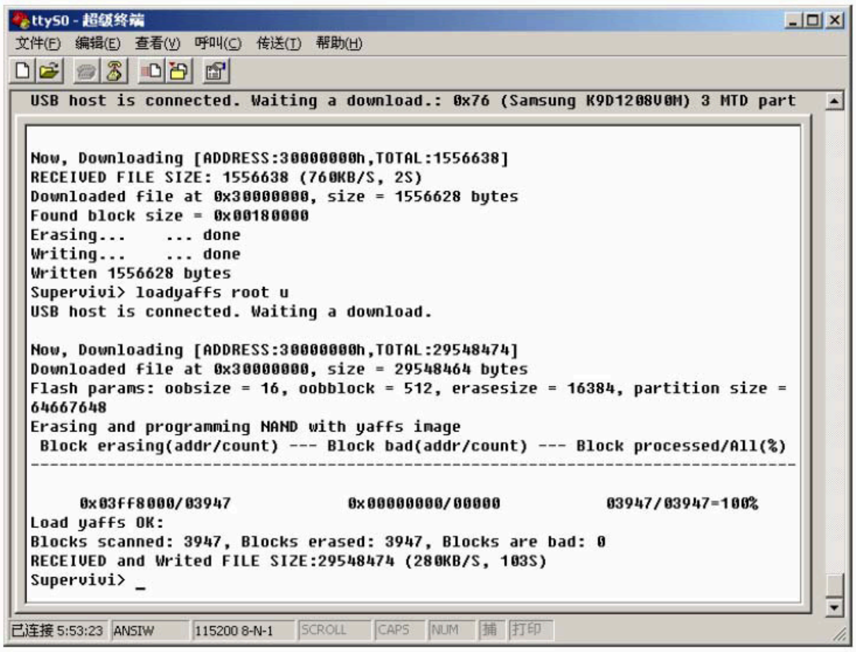
Note: User can also use **load flash kernel x** command to download and update linux kernel by xmodem prototype from hypterminal.

2.4 Install yaffs

Input: loadyaffs root u

Click DNW USB Port->Transmit to select which file system image file you want to download. Linux file system image will be updated to Nand Flash after successfully downloading.





2.5 Start OS

Please un-plug USB cable after system successfully updated

Input “boot” under BIOS or power cycle/reset the board. Supervivi will restart and boot linux automatically.

3. Wince Installation

Wince binary image file is on image/wince folder. Connect MINI2440 board with USB cable and power on the board to enter supervivi command line mode. Watch indicator on DNW title bar to check if USB connection success:



Major steps for Wince installation:

(1) format Nand Flash(make partition)

(2) Install bootloader

(3) Install Eboot

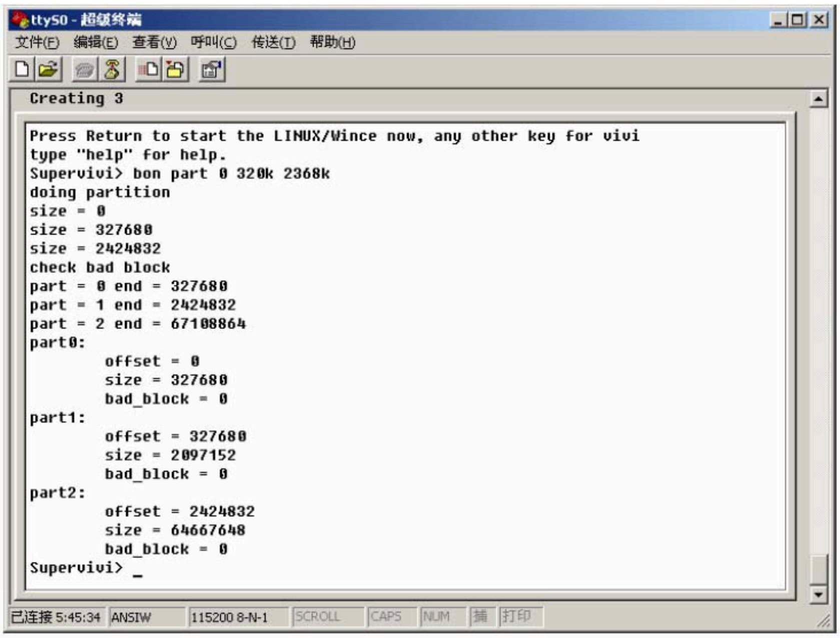
(4) Install Wince

3.1 Nand Flash Make Partition

Under BIOS: **bon part 0 320k 2368k**

Description: bon is command to make partition, the command above is to make 3 partition from Nand Flash address 0:

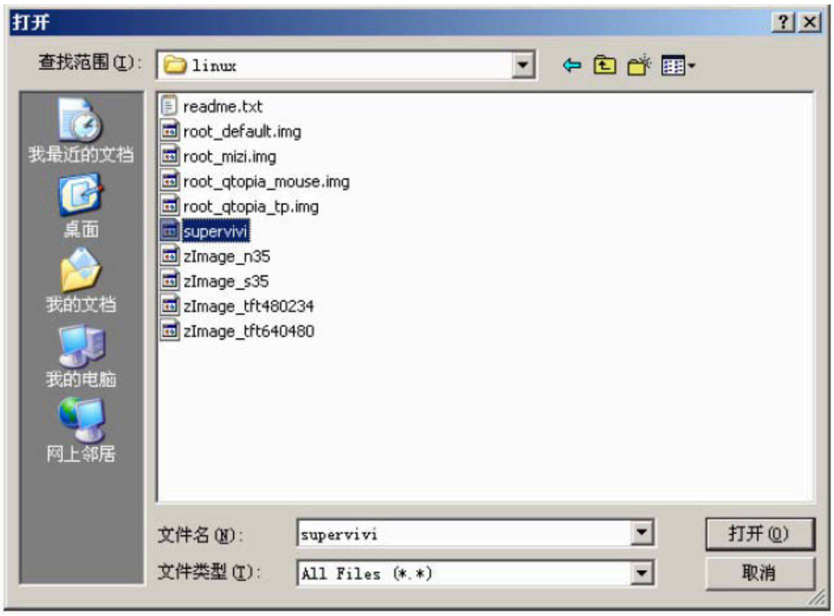
0-320k: size is 320k
320k-2368k: size is 2M
2368k-64M: size is 62M



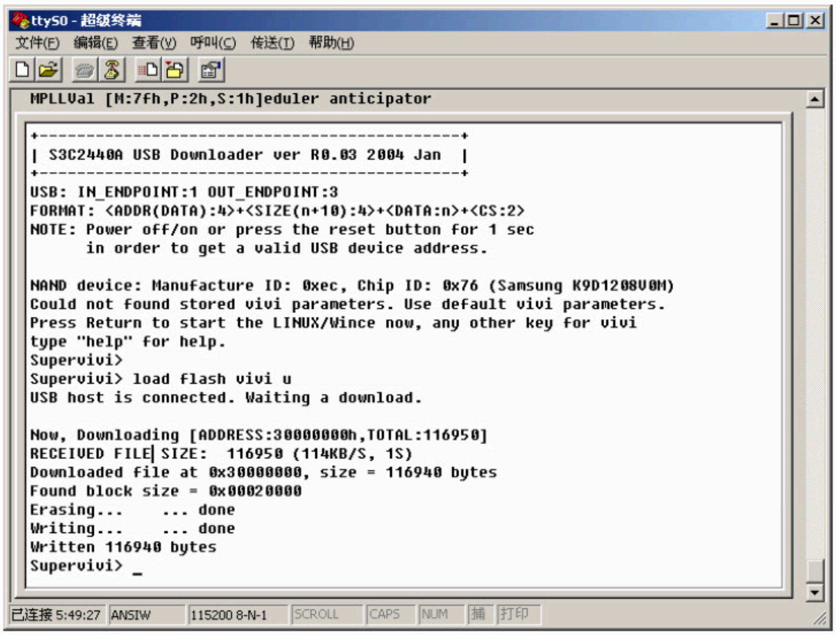
3.2 BIOS Recovery

Caution: The operations in section 3.1 will erase all data in Nand Flash. Please do not shut off the power or you will have to re-load supervivi in Nand Flash.

Input: **load flash vivi u**
And then click USB Port->Transmit to download supervivi image file.



After successfully downloading, BIOS will update this new supervivi image to Nand Flash.



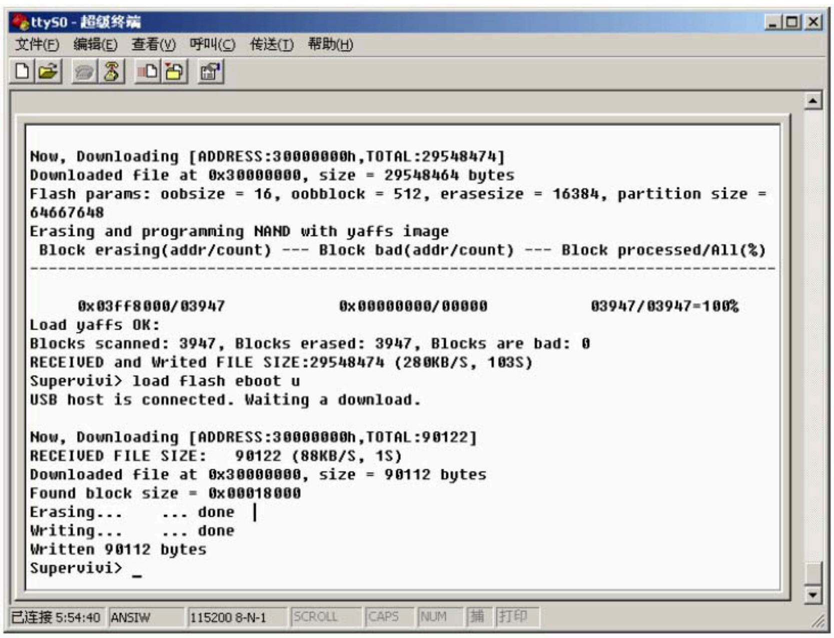
Note: User can also use **load flash vivi x** command to download and update suervivi by xmodem prototype from hypterminal.

3.3 Install EBoot

Input: **load flash eboot u**

Click USB Port->Transmit to select eboot.nb0 to start download. Eboot will be automatically updated to Nand Flash after successfully downloading.

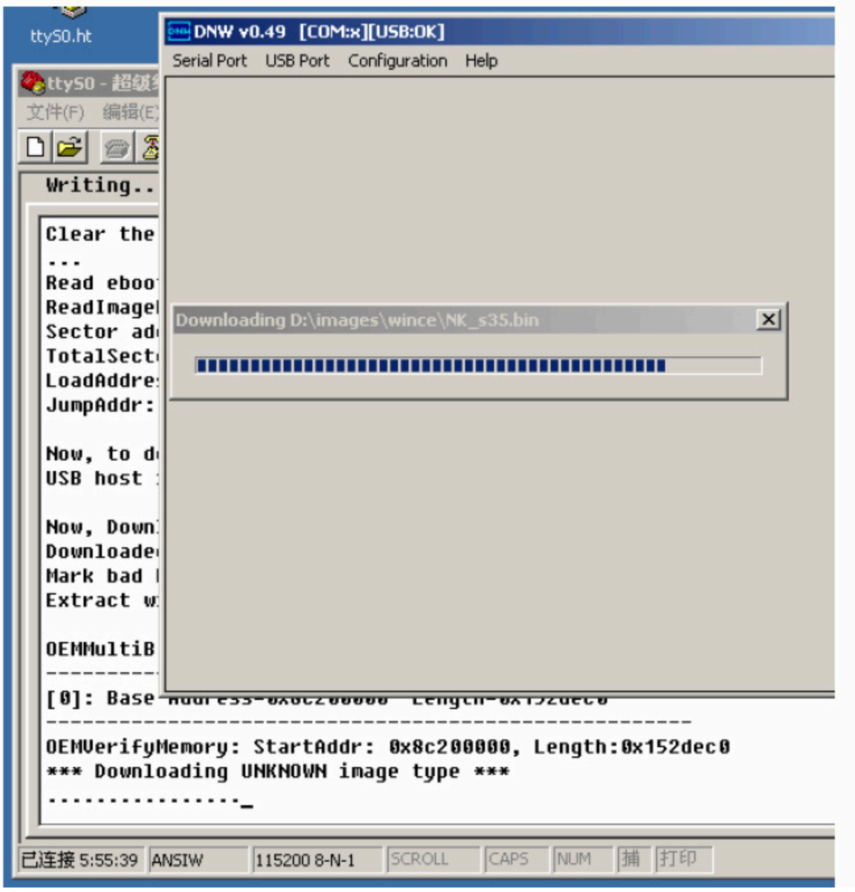
Note: User can also use **load flash eboot x** command to download eboot from hypterminal by xmodem prototype.

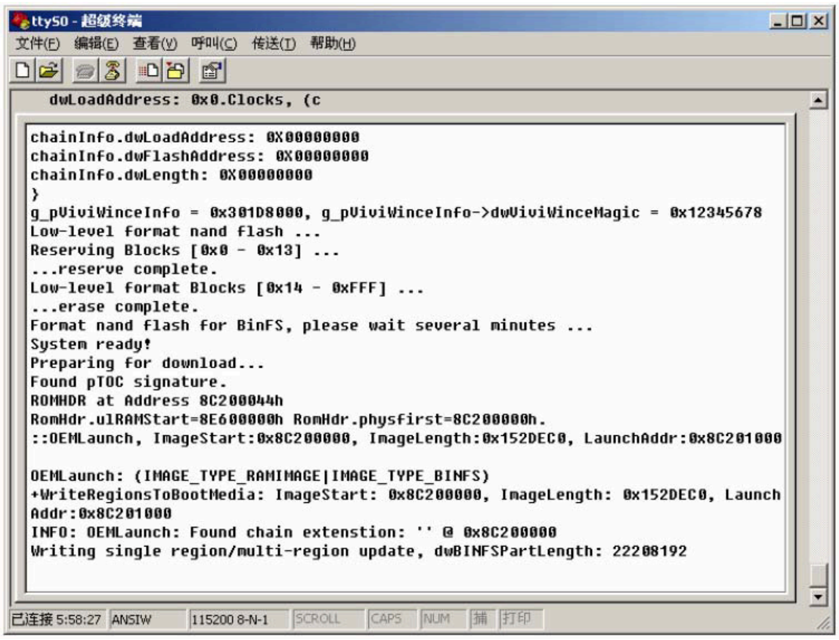


3.4 Install Kernel

Input : **load flash wince u**

Eboot will prompt user to download wince from USB. Click USB Port->Transmit to select Wince image file to start download.





Eboot will low level format Nand Flash and then convert BinFS. After formatting successfully done,

Eboot will update windows CE image file to Nand Flash. WinCE will automatically start up finally.

